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*The Home Medical
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The Home Medical Library

By

KENELM WINSLOW, B.A.S., M.D.

Formerly Assistant Professor Comparative Therapeutics, Harvard University; Late Surgeon to the Newton Hospital; Fellow of the Massachusetts Medical Society, etc.

With the Coöperation of Many Medical
Advising Editors and Special Contributors

IN SIX VOLUMES

*First Aid :: Family Medicines :: Nose, Throat, Lungs,
Eye, and Ear :: Stomach and Bowels :: Tumors and
Skin Diseases :: Rheumatism :: Germ Diseases
Nervous Diseases :: Insanity :: Sexual Hygiene
Woman and Child :: Heart, Blood, and Digestion :: Personal Hygiene :: Indoor Exercise
Diet and Conduct for Long Life :: Practical Kitchen Science :: Nervousness
and Outdoor Life :: Nurse and Patient :: Camping Comfort :: Sanitation of the Household :: Pure
Water Supply :: Pure Food
Stable and Kennel*

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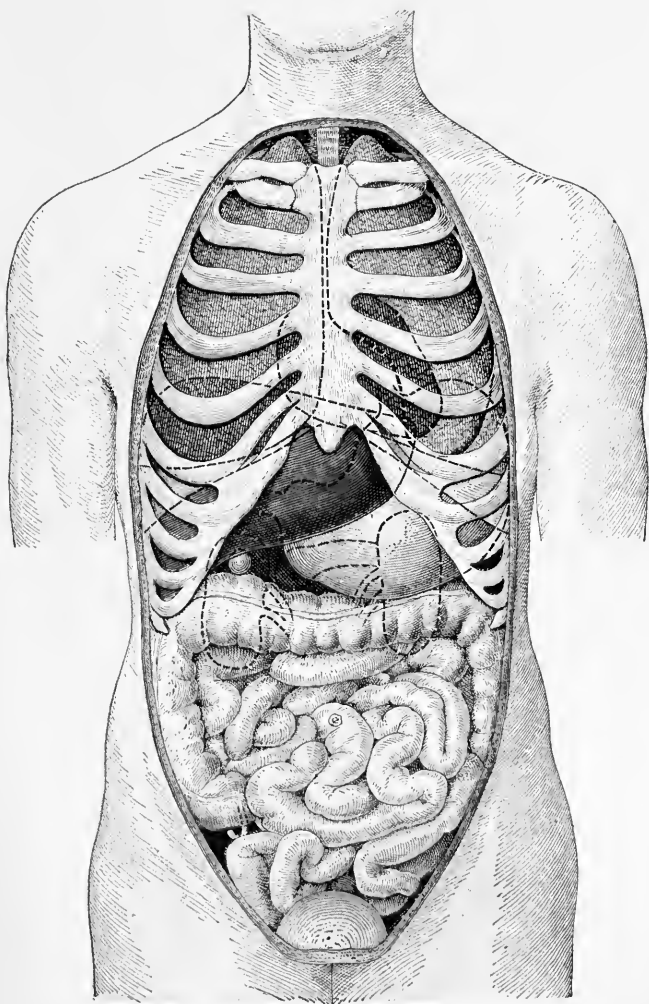
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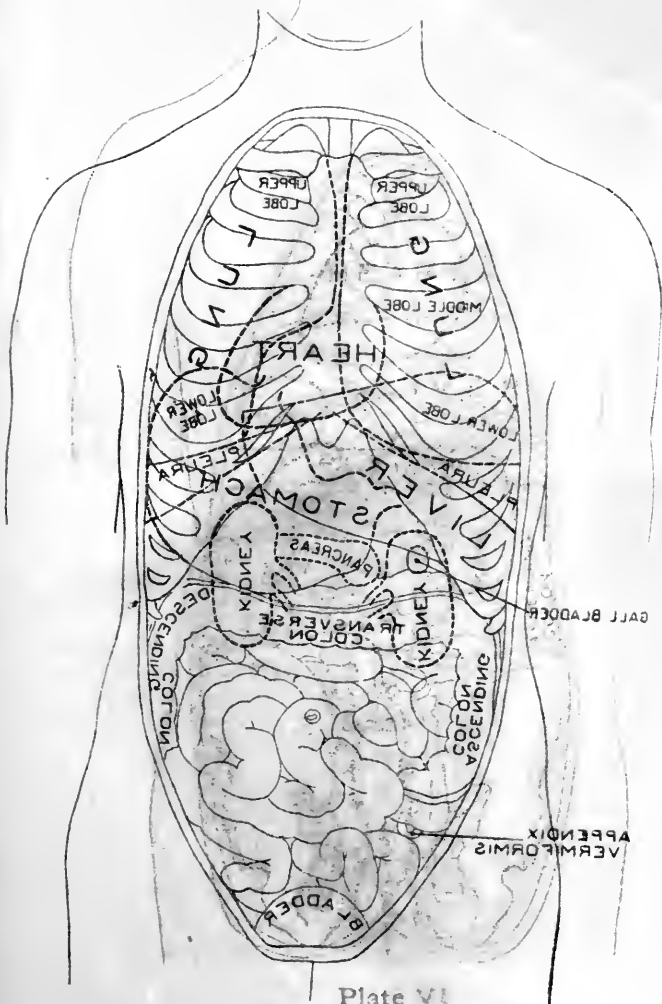
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THORACIC AND ABDOMINAL CAVITIES FRONT VIEW OF THORACIC AND ABDOMINAL CAVITIES

OF WHOLE PLATE V

Plate VI



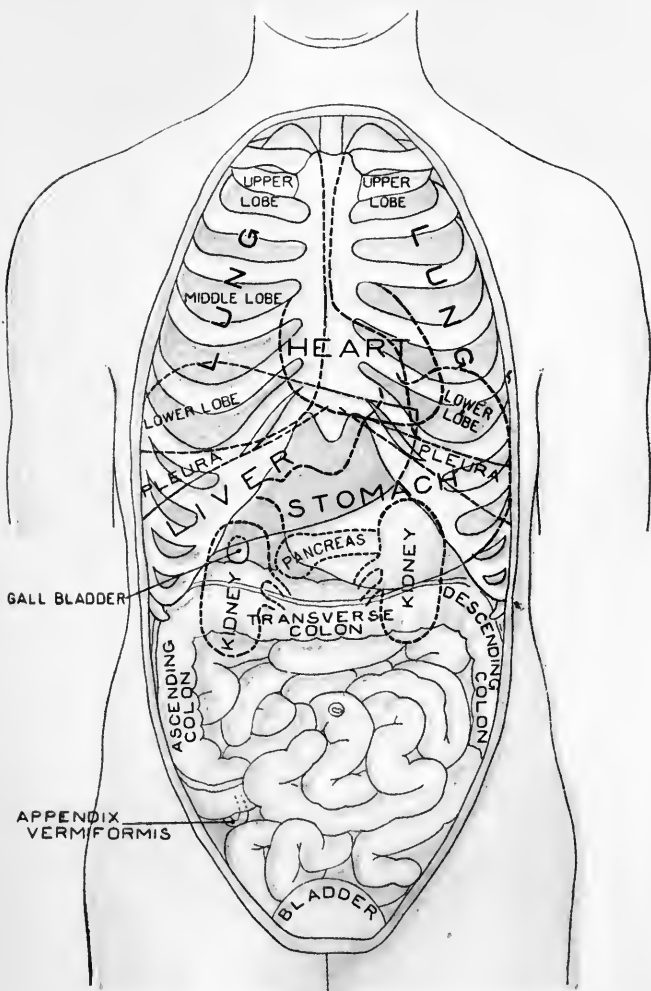


Plate V

FRONT VIEW OF
THORACIC AND ABDOMINAL CAVITIES

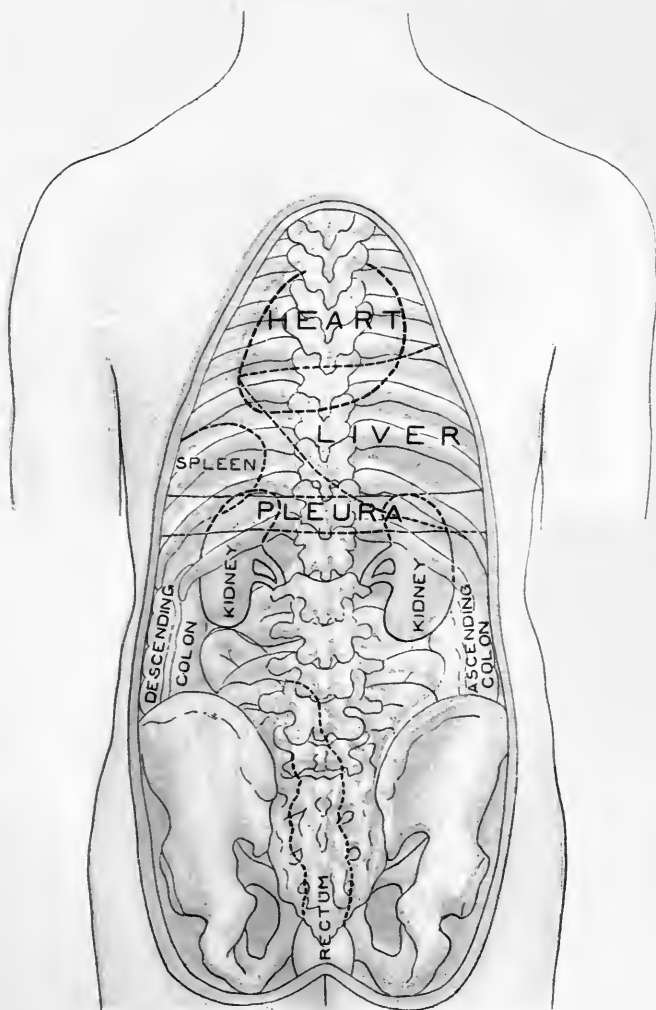
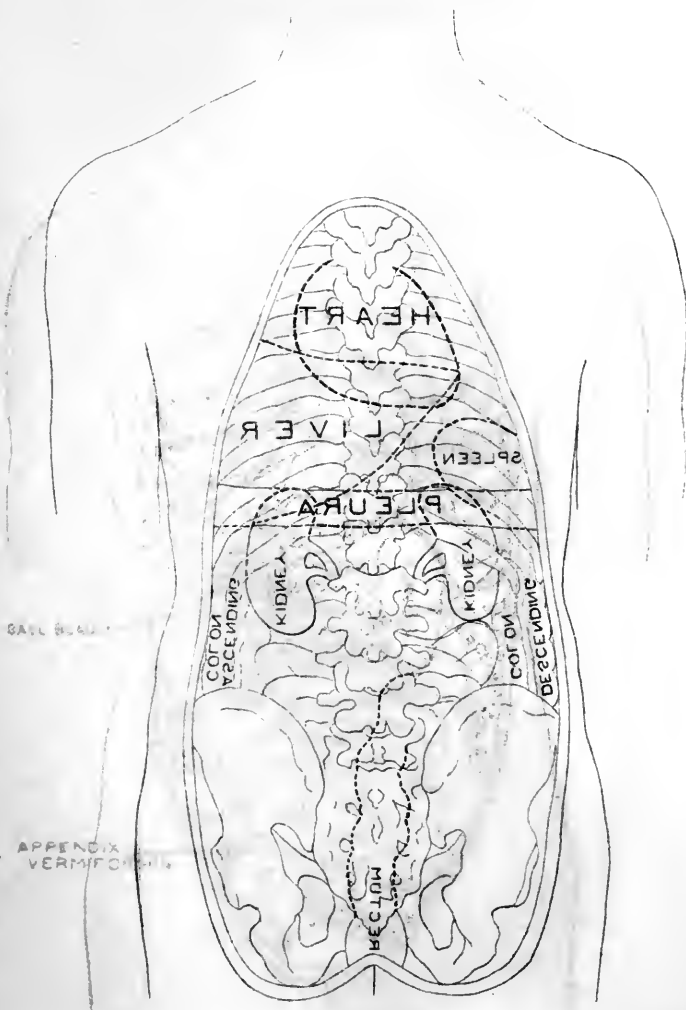
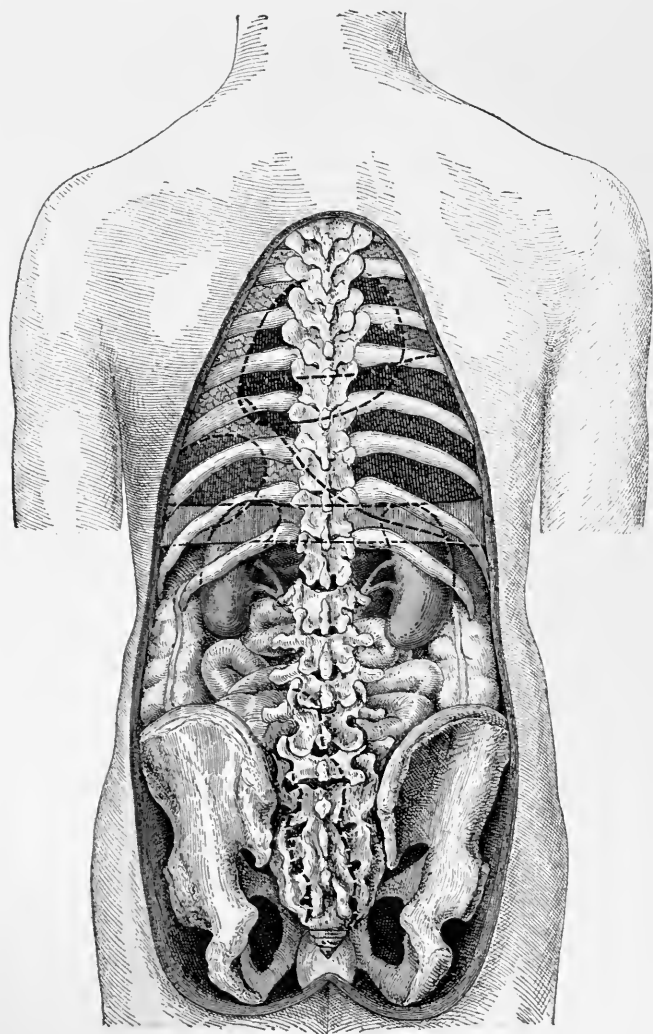


Plate VI

REAR VIEW OF
THORACIC AND ABDOMINAL CAVITIES



THORACIC AND ABDOMINAL CAVITIES
 REAR VIEW OF
 Plate VI





The Home Medical Library

Volume III

NERVOUS DISEASES WOMAN AND CHILD :: THE HEART THE STOMACH AND BOWELS COMMON ABDOMINAL PAINS

By KENELM WINSLOW, B.A.S., M.D. (Harv.)

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ASSISTED BY

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Part I

THE NERVOUS SYSTEM

BY

KENELM WINSLOW



CHAPTER I

Nervous Diseases

Nervous Debility—How to Cure Sleeplessness—Collapse—Treatment of Neuralgia and Rheumatism—Neuralgia—Remedies for Convulsions—Epilepsy—Unconsciousness—Apoplexy—Delirium Tremens.

NERVOUS EXHAUSTION; NERVOUS DEBILITY (*Neurasthenia*).—Nervous exhaustion is by far the most frequent of the nervous diseases, especially in the United States, on which account it has been called the American Disease. The condition was first described and named by Beard of New York in 1879. He defined it as a state in which there is a deficiency of nerve force, shown by undue sensitiveness (and reaction) to external impressions. Mental impressions are greatly exaggerated. What would be but a molehill to the robust, becomes magnified so that it appears as a mountain; a nervous strain, borne without trouble by the strong, results in nervous collapse; slight muscular effort occasions fatigue out of all proportion to the cause.

Causes.—No case is found, as a rule, to be due to any one cause. Usually several causes are conjoined. Heredity plays an important part. Weakness and instability of the nervous apparatus, what is called a

Nervous Exhaustion

neurotic temperament, is frequently inherited from parents, themselves the victims of nervous or mental troubles, or addicted to excesses of some kind. It may be due to faulty development and nutrition of the child while yet unborn. Individuals with the neurotic temperament may be healthy if no continuous strain be sustained by them, but they have no reserve capital of nerve force, and easily succumb. Persons not born with weak nervous systems may acquire nervous exhaustion through mental and physical overwork, prolonged emotional excitement, care, anxiety, or grief. Worry is both a cause and an effect of nervous prostration.

Certain occupations are more favorable to the development of the disease. Thus, teachers, brokers, bankers, journalists, business men, and women fretted by manifold household cares are especially prone to nervous prostration. Poisons produce the condition, so that alcoholics and tobacco in some, morphine and the poisons of *grippe*, typhoid fever, and syphilis in others, are not infrequent causes. Sexual excesses, prolonged sexual excitement, and abuse of the sexual organs in the young (see *Health and Purity*, Vol. II, p. 191) occasion nervous debility, although the dread of the consequences is often a more potent factor than the damage done in the case of the latter misfortune. The strong emotional excitement induced by the longings, doubts, fears, and hopes of love and religion is also responsible for its share of neurasthenia. Diseases of

special organs may so exhaust the nervous system as to cause general prostration. When such can be cured, the nervous prostration is likewise relieved. Injuries to the head and back not at all uncommonly give rise to nervous exhaustion, even in the strongest persons. Trepidation over suits, or claims for damages, increases neurasthenia.

Symptoms.—Nervous exhaustion occurs more frequently between the ages of twenty and forty. Both sexes are subject to it. Patients are usually of a spare figure, but occasionally are very stout.

The symptoms are more numerous and varied than in any other disorder known, while the actual alteration in the anatomy or structure of the nervous system, if any, is unknown. Among the most frequent symptoms are: a feeling of pressure and fatigue in the top and back of the head; pain in the lower part of the spine and back of the neck; muscular weakness, as in walking; numbness, and creepy or crawling sensations in the skin; or feelings of heat or cold, imaginary feverishness, or general chilliness; and, again, burning, hot flashes, sweating and flushing of the surface. Tender spots along the spine, usually in more than one locality, and morbid introspection, or self-analysis of symptoms are very common. There is often despondency, confusion of the mind, and inability to fix the attention, so that it becomes almost impossible for the patient to add a column of figures or dictate a letter. The emotions are under poor control, and pa-

Nervous Exhaustion

tients may weep on the slightest cause. The temper is apt to be irritable or moody, and the subject forever fearful and anxious about himself. He imagines he is becoming insane, is afraid to ride on the cars, to go among crowds, to be alone, fears tall buildings will fall on him, dreads fatal disease, thunder and lightning, etc. The sleep is variable; there is commonly sleeplessness, occasionally the opposite condition. The digestion usually suffers; the symptoms of special digestive diseases may be present (see *Nervous Dyspepsia*, p. 190). Constipation is frequent.

Pain and distress in the region of the heart, and violent, rapid, and irregular heart action are frequent causes for complaint. Disorders of the sexual organs are the rule; in women, disordered menstruation and pain in the ovaries; in men, inability to perform the sexual act, or great exhaustion after it, or premature discharge from the sexual organ. Muscular weakness is shown at times, in severe cases, by unsteady, uncertain, and trembling gait; sometimes by difficulty in enunciating and in writing. Pain may be felt anywhere—in the skin, head, neck, muscles, joints, or some internal organ. While all the symptoms enumerated never attack the same patient at any one time, they are apt to be more or less troublesome at different times; some being prominent in some persons, others in other individuals. Occasionally only one symptom is at all salient, and in that case the determination of the causes is difficult.

Outlook.—The outlook as to life is favorable. Patients very rarely either die or have their lives shortened by nervous prostration. The disease has a tendency to be chronic and, even under most favorable circumstances, there may be relapses, and then the patient's courage and hope are sadly taxed. The degree of cure depends partly upon the nature of the exciting causes, and whether these can be removed, e. g., upon the amount of inherited weakness; whether stress and strain may be removed; upon the duration of the disease before treatment is attempted; and also upon the ability and will to follow out treatment. The nervous capital will always be small, and, therefore, extra calls made upon it are liable to lead to bankruptcy.

Nervous debility which is not inherited, but acquired through some disease of special organs, may be entirely cured if the cause is removed. Cases due to accidental injury are often of grave import.

Determination of the Presence of the Disease.—This is best done by a physician, after a thorough examination of the patient. In no disease is this more essential, since the symptoms are so varied and resemble those peculiar to so many other diseases. One characteristic feature of nervous exhaustion is the very variety of symptoms, and their liability to change and shift. Another feature of importance is the tendency to improvement, when the surroundings and circumstances are favorable to happiness and well-being.

Treatment.—The first endeavor in any rational

Nervous Exhaustion

treatment is to remove the causes—whether they be unfavorable environment, circumstances, habits, injury, or disease.

Hereditary influences cannot be abolished, and treatment, as Osler remarks, should often have been begun a generation back; but neurotic tendencies in children can be overcome in large measure by proper training. They should be brought up, as far as possible, out of doors, should receive simple, nourishing food, keep regular hours, and have plenty of sleep. Instruction calculated to prevent any sexual stimulation (see *Health and Purity*, Vol. II, p. 191) should be given, and if any signs of nervous disturbance develop at puberty, the child must be taken from school and be made to lead an outdoor life in the country. All emotional excitements should be avoided, as well as excess in alcohol, tobacco, tea, and coffee; if the latter can all be absolutely cut off, it should be done. The nervous strain incident to long marriage engagements, to certain occupations, and to the various causes noted above, should be shunned whenever possible.

In no disease are the support and encouragement of a physician more helpful in allaying the morbid fear of the patient that he is suffering from a fatal or incurable disorder, in reinforcing the weakened will, and in restoring hope when relapses occur, than in neurasthenia.

In patients well enough to be about, one of the chief factors in promoting recovery is change of sur-

roundings, habits, work, and amusements. In cases resulting simply from overwork, the rest attained by six months of travel and outdoor recreation will suffice, and this is the hackneyed advice. But when this is not possible, the hours of work may be shortened an hour given to rest daily, while some form of exercise, as bicycling, riding, rowing, golf, fishing, hunting, tennis, swimming, or gymnastics may at the same time be undertaken, choosing that which appeals most strongly to the taste of the patient. Change in the habits—even to the extent of forming somewhat irregular habits in sleeping, and to the pursuit of literary work in place of outdoor sports—has proved curative, but such an unusual course can be advised with safety only by a physician.

What would usually be called overeating is generally advisable, more especially in the thin and pale. A glass of milk, an eggnog, a cup of cocoa, a raw egg, or a cup of strained oatmeal should, one or the other, be taken between the regular meals and at bedtime. Sleeplessness should never be treated with drugs, unless by a physician's orders, as hypnotic drugs are usually unnecessary and injurious in these cases. A warm bath with a cold compress to the head, and a glass of warm milk or of beer, before retiring, are often sufficient. Drugs, as a whole, play little part in the cure of nervous exhaustion, except to relieve certain symptoms. Cod-liver oil is frequently of value, while iron, in pallor and anæmia, also supplies an es-

Nervous Exhaustion

stantial constituent of the blood and is indicated. Indigestion improves more certainly under the general measures suggested, than by dieting, drug, or local treatment (see *Nervous Dyspepsia*, p. 190).

Various forms of water cure are of worth. One of the simplest is the hot followed by the cold spray, which may be taken in the morning from a hose and sprinkler made for attachment to the ordinary bathroom faucet. For the chronic cases, those too sick to follow the ordinary life, and for many weak, thin, and poorly nourished women, who can thus only escape from their manifold household worries, the "rest cure" originated by Weir Mitchell of Philadelphia is the most successful treatment. This implies the complete isolation of the patient in bed, usually in a well-ordered hospital, for six to eight weeks, and treatment with large amounts of nourishing food given at frequent intervals, with different forms of water cure, and with massage and electricity, while the patient gives up all responsibility to the doctor and nurse, and is shielded from emotion or cares and worries by separation from friends and family. Gain in flesh in nervous exhaustion commonly goes hand in hand with general improvement. A gain of sixty and even eighty pounds sometimes results from the rest cure. Exercise in nervous exhaustion may be readily carried to excess. Exercise should never be followed by more than a healthy fatigue, and should be combined with a daily hour of rest on the bed or couch. Walk-

ing, or merely rest, in the open air is sometimes preferable to exercise for women.

The special disorders which we have noted as often leading to nervous exhaustion can, of course, be discovered and treated properly only by a physician, and the sooner patients suffering from symptoms suggestive of this disease submit themselves for thorough examination, the better. No two cases are exactly identical in symptoms, causation, or treatment required, but information concerning duration before treatment is very important in every case.

HICCUP; HICCOUGH.—While this curious disorder usually lasts but a short time, it sometimes persists for days and weeks, and becomes an alarming and, rarely, a fatal malady. Frequently there is no cause apparent, it appearing in persons seemingly in perfect health. The irritation of the mouth and throat, caused by hot drinks, pepper, a strong pipe, etc., are frequent sources of the trouble. Indigestion is another common cause, particularly in children. Excitement and some kinds of nervous diseases, particularly hysteria, induce it. In certain inflammations of abdominal organs it is common, also in kidney disease.

Treatment.—Among the more simple remedies are holding ice in the mouth or drinking cold water, sticking out the tongue, and tickling the nose with a straw until one sneezes several times. A most effectual remedy consists of stopping up both ears with the tip of one finger of each hand while one drinks from a cup held

Plate VII

BASE OF THE BRAIN

The illustration opposite shows some of the **Lobes** of the **Cerebrum**, the **Cerebellum**, the **Medulla Oblongata**, and certain **Arteries** of the brain.

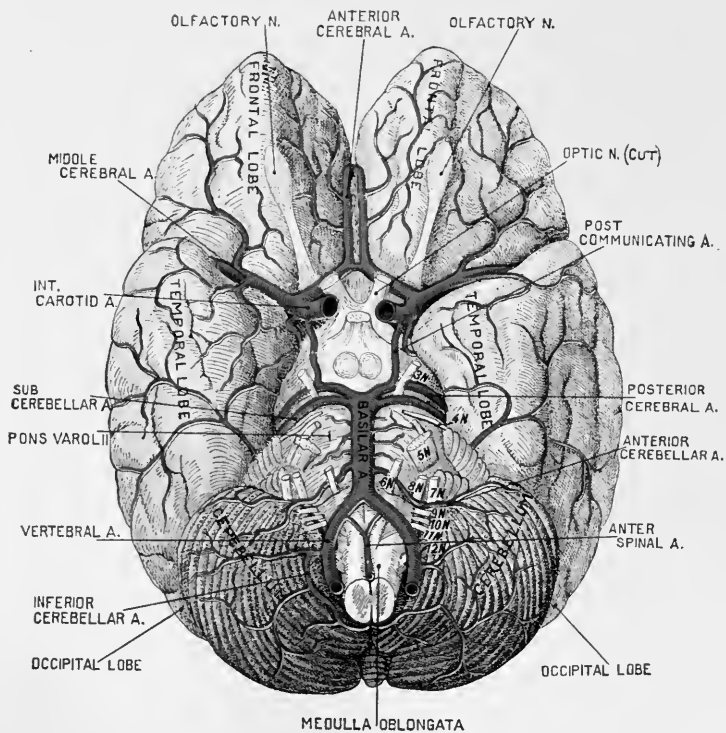
The large arteries that distribute blood to all parts of the brain unite and form an irregular ring, known as the "Circle of Willis" (See center of figure). A rupture of a branch of any of these arteries causes apoplexy or cerebral hemorrhage, with the production of a clot on, or in the substance of, the brain.

The **Internal Carotid Arteries**, which ascend along the side of the neck, divide to form the **Middle Cerebral**, the **Anterior Cerebral**, and the **Posterior Communicating Arteries**. In the illustration the carotid arteries are shown severed at the point where they reach the brain.

Some of the cranial nerves are shown cut off as they leave the brain, the stumps being numbered on the right-hand side of the figure.

The medulla oblongata is that part of the brain which is continuous with the spinal cord; it is united with the rest of the brain by the **Pons Varolii**.

A cerebral hemorrhage may cause a rupture of brain fibers, or pressure upon the nucleus of a cranial nerve and cause paralysis. The **Olfactory Nerves** convey the sense of smell; the **Optic Nerves**, that of sight.



by another person. Swallowing a little Jamaica ginger in water will sometimes afford relief. The use of an emetic or cathartic, or both, is indicated if there is indigestion. In the cases which resist these simple measures, it will be necessary to procure medical aid. Twenty drops of Hoffman's anodyne in a tablespoonful of water will often prove successful, and may be repeated every hour, if necessary, for three doses.

SLEEPLESSNESS; INSOMNIA; WAKEFULNESS.—Natural sleep is due to fatigue associated with a comparatively bloodless condition of the brain, and favored by withdrawing sources of excitement from the brain, such as noises, light, etc.

The causes of sleeplessness are without number, as it is often merely a symptom of an unnatural state, and yet the only reasonable treatment consists in removing the cause in order to remedy the disorder.

Among the most frequent causes are: brain work associated with worry, noise, some sort of pain or irritation produced by indigestion and a great variety of troubles, as nervousness, due to tea or coffee or alcoholic drinking, nervous exhaustion, chronic constipation, eyestrain, skin diseases, disorders of the brain, coughing; drug habits, as the use of opium and cocaine, diseases of the heart and kidneys, and acute inflammations and injuries of all kinds. High altitudes and change in the hour for the principal meal, together with irregular times for sleeping, invite in-

Sleeplessness

somnia. In infants, disorders of digestion, as colic, constipation, pain, too much sleep during the day or too early bedtime, too hearty supper or hunger, excitement in play before bedtime, absence of sufficient fresh air by day or night, overwarm covering or room, noises, bright light, cold feet, or fatigue—all these are common factors in insomnia.

Treatment.—Correct the cause if possible. It will often require a physician, however, to do this. Among the simpler remedies are the following: a warm, not hot, bath before bedtime with a cold cloth on the head will often procure sleep, particularly if there is heat of head with a tendency toward flushing of the face. The room should be cooler than by day (58° to 60° F. or lower), except in the case of young infants and old persons; an exceedingly cold room favors sleeplessness, however. Some hot drink before retiring is often useful in aiding sleep, as hot milk or malted milk, hot soup or hot toddy (for the aged), or a glass of beer. When sleeplessness threatens, the mind must be diverted from the idea that one will not sleep. Reading a light book in bed, or performing movements, such as deep breathing, or counting, are sometimes efficacious in diverting the mind from the haunting fear of insomnia. Wakefulness during the middle of the night may be combated by a glass of hot water, or one of the other drinks mentioned. Exercise out of doors and change in the activities from brain work to sports are frequently advantageous. Since insom-

nia is merely a symptom in many cases, e. g., of beginning nervous exhaustion, it behooves one to consult a physician if other symptoms occur.

Drugs should be the last resort, and are only permissible for a few nights to break up the wakeful habit. The greatest harm has been done by their habitual use, and they should be taken only under a physician's advice; but when this is not practicable, sodium bromide may be used with safety for a short period. Adults may take fifteen grains before retiring, and repeat the dose at bedtime, dissolving the drug in a quarter of a glass of water. Chloral in a single dose of five to ten grains dissolved in plenty of water may be taken by an adult at bedtime. It is a much more powerful remedy than the bromides, but on this account is inadvisable except when prescribed by a physician, as it is a powerful depressant of the heart's action. For children—besides removal of any discoverable cause—the warm bath at bedtime, or, if there is fever, wrapping the child in a sheet wrung out in cool water with cold cloth on the head, and then in a warm blanket, will usually be sufficient. Whenever wakefulness results from pain of any severity, the usual remedies for sleeplessness fail completely.

FACIAL PARALYSIS.—This is a common disorder, owing frequently to exposure to cold, as, for example, from cold air blowing on one side of the face while sleeping near an open window. Disease of the ear is a cause, especially in children; also injuries

Facial Paralysis

about the ear and tumors in this region; also syphilis. A late theory is that facial paralysis may be due to a microörganism setting up an inflammation of the facial nerve.

Among the less common causes which do not concern us so much here (as they require medical skill for their determination) are diseases of the brain in which other parts of the body may be also paralyzed, and the general health disturbed in many ways.

Symptoms.—The paralysis comes on rapidly, usually with little pain, although there may be earache. The patient may first discover it on looking in the glass, or on trying to eat, talk, or whistle. The face is smooth and expressionless on the paralyzed side. The eye cannot be closed on that side and weeps, the mouth is drawn over to the well side, and saliva may flow from it. Whistling becomes impossible. Eating is interfered with, and the food collects in the cheek of the paralyzed side. Speech is somewhat difficult. When the patient attempts to laugh, the paralysis is very noticeable, for the face is wrinkled on the sound side, but motionless on the paralyzed side. Wrinkles disappear from the forehead on the paralyzed side, and cannot be made to appear at will. The lower eyelid and corner of the mouth droop on the paralyzed side. There may be a peculiar taste at first, and later there may be some loss of taste in the tongue. There may be some swelling of the face on the paralyzed side in the beginning of the trouble. Deafness some-

times accompanies facial paralysis, and is commonly a sign of existing ear disease.

Treatment.—The facial paralysis following exposure to cold usually disappears with complete recovery in from two to six weeks. Persons have been known to have several attacks.

Hot applications should be made about the ear for the first few days. If there is running from the ear, or earache, an aurist should be consulted. The most valuable measures aiding recovery are electricity and massage, which must be managed by a physician. Some cases may run on for six or eight months, and yet eventually recover.

NEURALGIA.—Neuralgia means pain in a nerve or nerves. Theoretically there is no change of structure in the nerve in neuralgia, but practically it is occasionally impossible for even a physician to distinguish inflammation of a nerve (or neuritis) from neuralgia.

Causes.—Neuralgia occurs more frequently in those inheriting a weak nervous system, in the overworked and underslept, the anxious, nervous, excitable person. It is rare in childhood, and many varieties, as facial neuralgia, are more common in women, while sciatica attacks men more frequently. A "run-down" condition favors the disease, especially when combined with poor blood (see p. 174). Exposure to cold, bad teeth, overindulgence in alcohol and in tobacco, rheumatism, gout, kidney disease, diabetes, and lead poisoning are among the exciting causes. It is more apt

Facial Neuralgia

to attack women during pregnancy and the "change of life."

Symptoms.—Neuralgia may begin suddenly. More often there are some peculiar feelings, as a sensation of cold or prickling, before the pain commences. The pain is of a sharp, darting, shooting, stabbing, or burning nature, with intervals of a second or few minutes when the patient is free from suffering. It occurs more often on one side of the face or body. The skin over the painful region is sometimes red, swollen, and hot or cold, and very tender. When pain attacks the eye tears may flow; when the pain is referred to the teeth the saliva may flow freely. Neuralgia about the head leads rarely to falling or whitening of the hair. Twitching or spasms of the muscles in the painful area may be present. Painful spots along the course of the nerve which gives rise to the pain are a peculiar feature of neuralgia.

Attacks of neuralgia may subside without treatment in time, but are likely to last from one to several hours, and to return at regular or irregular intervals of long or short duration.

FACIAL NEURALGIA (*Tic Douloureux*).—This is the most common form in women. The pain may be felt in the forehead, eye, and nose on one side of the face, with a spot of tenderness just above the eye. The eye is often bloodshot and the tears flow, or the pain is felt between the eye and mouth, with spots of tenderness on the side of the nose, below the eye,

and along the line of the gum of the upper jaw on one side of the face. Frequently the pain attacks the temple, ear, lower jaw, teeth, and tongue, with a tender spot in front of the ear; and there is increased pain in chewing and speaking, and saliva runs from the mouth. Neuralgia of the face occasionally causes severe pain, and continues obstinately for a long period, especially in those with inherited tendencies and in the elderly.

Neuralgia sometimes attacks the back of the head and neck, or the shoulder and upper arm, when the pain resembles that of rheumatism or of an injury to the shoulder.

Neuralgic pains of one side of the chest are not rare. They are much aggravated by motion, deep breathing, or coughing. They may resemble the pains of pleurisy, but there is usually no fever or cough; still, examination of the chest by a physician is essential to rule out the latter disease. With neuralgia of the chest may be associated an eruption on the skin known as shingles. After a few hours or days, or even a longer period, a red, tender spot appears, and upon this occurs a group of small blisters. When the eruption disappears the pain usually subsides, but may continue indefinitely, and there is great tenderness to touch. Shingles may be seen on the head, forehead, face, upper arm, shoulder, buttock, and thigh, accompanied with severe pain. It usually attacks only one side of the body, and is relieved by the remedies rec-

Plate VIII

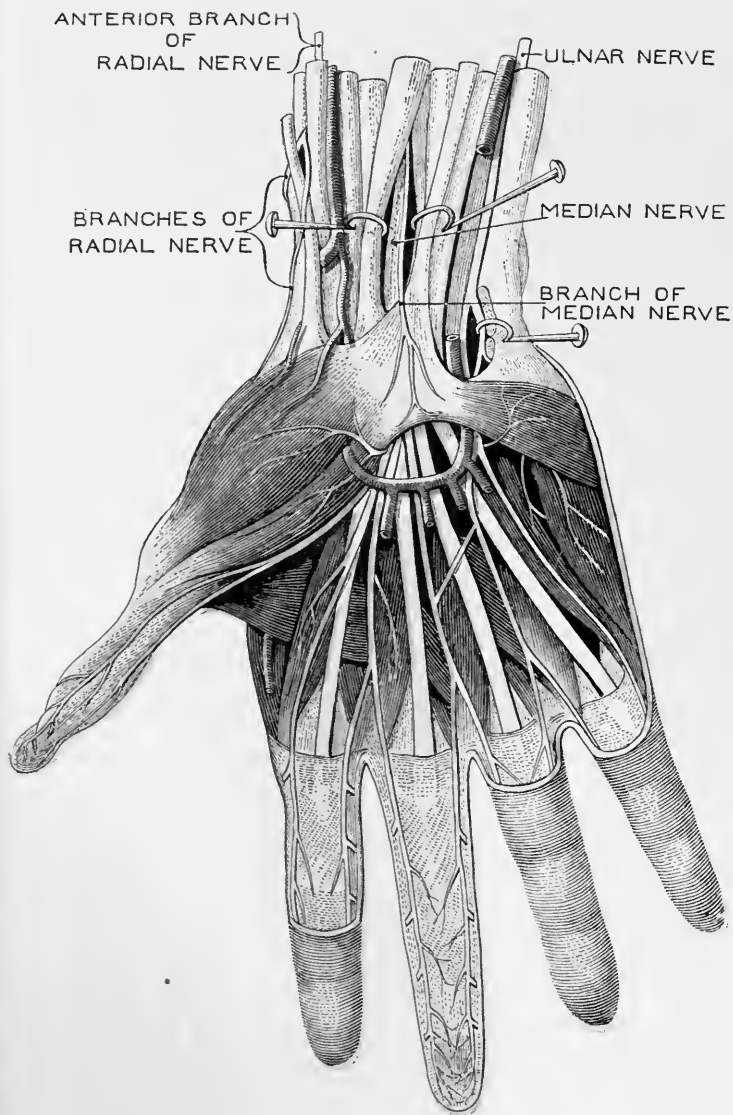
THE PALM OF THE HAND

The illustration opposite shows the nerves, muscles, etc., in the palm of the right hand, and gives some idea of the possibility of dangerous results from wounds or bruises of this member of the body. The nerves shown carry impulses of motion or sensation. Neglect of any deep injury involving the nerves may permanently cripple the hand.

The **Arteries Shown in Red** form the palmar arch, which supplies blood to the palm and fingers.

The **Radial Nerve** supplies the thumb, forefinger, middle finger, and half of the ring finger. The **Ulnar Nerve** is distributed to the little finger and remaining half of the ring finger. The **Median Nerve** supplies the muscles in the palm.

The **Tendons** that close the hand are shown as **Broad Flat Bands** entering the center of each finger near its surface.



ommended for neuralgia in general. A cloth saturated with pure alcohol and covered with oil-silk or rubber will afford relief when applied over the painful region. The eruption should be dusted with starch and kept clean, and the blisters should not be broken. Pain in the chest resembling neuralgia may be produced by many other conditions, and, therefore, a careful medical examination is always desirable.

Neuralgia of the chest is seen more often in thin, nervous women. In this affection tender spots may be discovered near the spine and breastbone, and midway between these points.

Neuralgia of the spine, with tender spots along its course, and pain in the neck, or in the middle or small part of back, is often present in nervous women, and in those suffering from railway accident. Pain in the very lowest end of the spine which is aggravated by the sitting position is also common in women. Occasionally persons suffer from neuralgia in the heel and sole of the foot.

SCIATICA.—Sciatica is a neuralgia or inflammation of the sciatic nerve which extends from the upper, middle part of the back of the thigh down to the foot. It is occasioned by exposure to cold or wet, by lifting, and, in women, may be due to some disease in the neighborhood of the womb, or to injury sustained in childbirth. It may also be due to disease of the spine. Rheumatism is a common cause.

It may come on suddenly, or gradually, beginning

Sciatica

with pain in the small part of the back. The true pain of sciatica starts in the middle of the upper, fleshy part of the back of the thigh, and extends down the middle of the back of the limb, even to the foot, and there are tender spots along this course, especially in the upper and middle portion of the back of the thigh. The pain is generally intense, worse at night and on walking. It is burning or boring in character, but at the beginning may be felt only after exercise, or when the leg is held in certain positions. Walking becomes difficult (or impossible), even if the weight is borne on the toes with the knee bent. There are sometimes cramps, spasms, and wasting of the muscles in the disabled limb. The patient usually is compelled to remain in bed, and the disease may last months, with occasional improvement and return of the trouble. A thorough examination by a medical man is demanded to eliminate local disease, as of the spine or hip, and, in women, of special troubles which may occasion the sciatica.

Treatment of Neuralgia in General.—Prevention is better than cure. Wholesome, nourishing food, exercise out of doors, change of air and scene, cold baths, and sea bathing are valuable in preventing neuralgia in susceptible persons. The same measures will be found valuable in the treatment of neuralgia, with the possible exception of cold baths. Such remedies as chloroform liniment, menthol pencil, or chloroform and alcohol, each one ounce, in which is dissolved

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sixty grains of menthol, may be applied externally and covered with oil silk. Heat in the form of hot-water bag or poultice is often grateful. A two-grain quinine pill may be taken hourly during the attack. Phenacetin in the dose of three to six grains, to be repeated but once (in two hours), if necessary, is one of the most serviceable drugs in relieving pain; it must always be used with caution. Exposure to cold, mental excitement, and movement aggravate the pain. Pain is a vague and uncertain symptom, and may be felt in a spot distant from the real source of disease, so that it is not safe for a layman to call his pain neuralgia until he has received a proper medical examination. There are many other remedies which can only be employed by the physician, including electricity, drugs, and surgical measures, and the neuralgic patient will seek his services at the earliest moment.

Treatment of Sciatica.—Rest in bed with the application of hot-water bags to the back of the thigh may be employed. Wrapping the limb in cotton bathing and bandaging are of service. A blister, cut one and a half inches square, may be applied for a few minutes over the seat of the pain at the upper part of the back of the thigh, or iodine may be painted on the same spot over a surface as large as a silver dollar until the skin is almost black, and either of these may cure mild cases, if used at the very beginning of the trouble. Phenacetin may be tried, as advised for neuralgia in general, to stop unbearable pain. A host of

Convulsions in Children

remedies is at the command of the physician, and a patient is unfortunate, indeed, who cannot procure medical aid to relieve his suffering, though many cases are very intractable.

CONVULSIONS IN CHILDREN—Symptoms.

—Convulsions may begin with squinting of the eyes, restlessness, starting or crying out in sleep, grinding the teeth, bending the thumbs, or slight twitching of the muscles of the face or limbs. Such signs should serve as a warning, particularly if the child is feverish, and should lead one to bathe the patient immediately with cool water as described below. The fit may begin with a choking sound, the body stiffens and is arched forward, while the head and neck are bent rigidly backward; the eyes are fixed, staring, squinting, and rolling, but sightless; the child neither sees, feels, nor hears, but is wholly unconscious. The face becomes blue, the hands are clenched, and then the body and limbs begin to jerk and twitch, the arms and legs being alternately bent and straightened. The breathing is rapid and noisy, there is grinding of the teeth, and frothing at the mouth; sometimes the tongue is bitten. The whole attack may last but a moment, and there may be no more, or the attack may last for several minutes or, rarely, hours, or there may be frequently repeated attacks. If the immediate cause, as fever, can at once be removed, there is little probability of a return of the fits. The child, after the convulsions, acts bewildered and begins to cry, and returns

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to consciousness, or falls to sleep or into a stupor, or, very rarely, dies in the fit.

Treatment.—Place the child in a bath a little warmer than blood heat, but not hot, with a cold cloth on its head, and keep it under water to the neck for ten minutes. Then remove the child and wrap up warmly in blankets. When the child is conscious and can swallow, give a teaspoonful of syrup of ipecac to empty the stomach. Just as soon as the child is removed from the bath, give an injection of warm soap-suds, to move the bowels, and afterwards inject into the bowel about a tablespoonful of thin boiled starch and water containing from two to five grains of chloral, or, if the child is over two years old, five to ten grains of chloral, and make the child retain it by holding a towel against the exit to the bowel. It is wise also to open the bowels by giving one grain of calomel, (or, if over one year of age, two grains) dropped on the tongue, or mixed with a little sugar and water in a teaspoon. If the child has fever (the temperature should always be taken if possible), the treatment is different. Do not use the warm bath, but keep a cold cloth continually on the head, and sponge the entire naked body frequently with cool, not cold, water (70° F.), rubbing the skin dry and placing a hot-water bottle at the feet. It is well to use the bowel injection and chloral in fever cases, but not the emetic. When the warm tub bath is not obtainable, a towel dipped into a quart of tepid water in which is stirred

Convulsions in Children

a tablespoonful of mustard may be used, when wrung out, to wrap about the child's body, which is then covered with blankets and allowed to remain for ten to fifteen minutes in this pack.

If the convulsion continues for any length of time ether may be used, although it is safer that it should be administered by a doctor. Still, if given properly, there is little danger, and it is the only treatment which will relieve the attack. Hold a folded napkin half an inch from the baby's mouth, and drop ether on the upper surface of it (about half a teaspoonful at a time) so as to keep the napkin continually wet over the baby's mouth and nose. Keep this up till the baby becomes completely relaxed and quiet, and then stop it. The milk should be largely diluted with water, if the patient is a bottle-fed baby, for some time after the attack. The condition which has caused the convulsion should be investigated by a physician and removed if possible.

Causes.—Children born of nervously weak parents or addicted to alcohol, or infants weakened by rickets (see p. 151) or some exhausting disease, as diarrhea, are more liable to spasms, especially under the age of two. Among the more common immediate causes of convulsions are: indigestion, teething, the onset of fevers of any kind (where the chills in an adult are often replaced in children by convulsions), as *grippe*, measles, scarlet fever, pneumonia, malaria, tonsilitis, diphtheria, and chickenpox. Raisins or orange peel swal-

lowed by young children have not infrequently caused convulsions. Among the less frequent causes are: worms, earache, heart disease, whooping cough, disease of the brain or spinal cord, severe and prolonged diarrhea, fright, anger, foreign bodies in nose or ear, pain, constipation, tight foreskin (see Vol. II, p. 194), and hot weather.

Spasms occurring soon after a difficult childbirth, especially when instruments were used, indicate that there is a probability that injury of the brain is the cause, and the result is uncertain.

When the spasms appear first as twitching of certain muscles, and increase in gravity and frequency as time goes on, particularly if the child is backward, awkward, or has a head of unusual size or shape, there is a likelihood of epilepsy (see below).

Outlook.—Infants, figuratively speaking, are bundles of sensitive nerves and centers, as yet unused to resist slight sources of irritation, so that in conditions when adults have chills, fever, or delirium, babies have convulsions. These, as we have seen, are, however, rarely fatal in themselves, although terrifying to the anxious onlooker. Indigestible food, as bananas and corned beef, has brought on the most severe attacks in young babies. Convulsions occurring in children with high fever do not usually return when the fever is reduced. So, when teething and indigestion are at the bottom of the attack, the measures recommended will usually prevent a return of the trouble. It is only

[Text continued on page 39.]

Plate IX

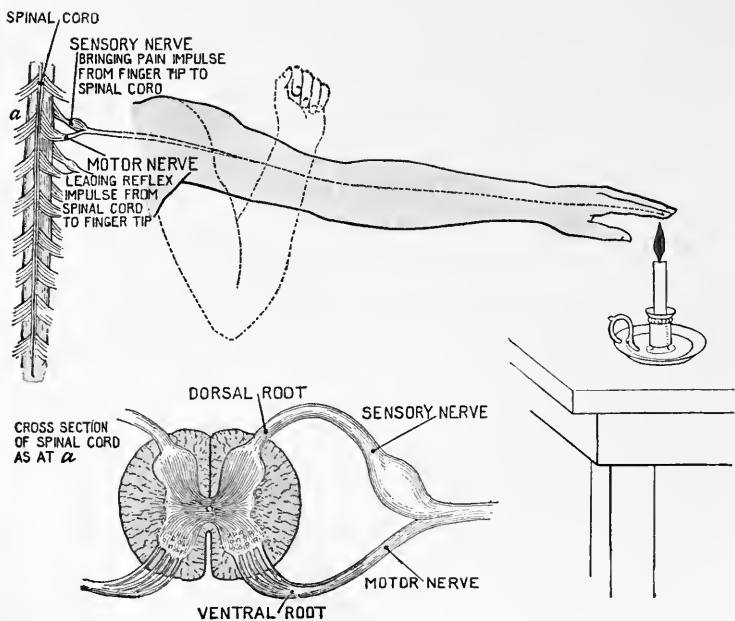
REFLEX ACTION OF THE NERVOUS SYSTEM

The upper illustration, on the opposite page, shows a hand held over a burning candle; the muscular action, which takes place when pain is felt, is indicated by a dotted outline.

When a person touches a flame, the impulse of pain passes from **Finger Tip to Spinal Cord** through the **Sensory Nerve**. Another impulse is awakened in the cord which, transmitted through the **Motor Nerve** from **Spinal Cord to the Muscles of the Arm and Forearm**, causes a sudden withdrawal of the hand.

The lower illustration shows a **Section of the Spinal Cord** and the anatomical connection between the **Motor and Sensory Nerves**.

The **Ventral Roots** emerge from the front of the spinal cord and join the **Dorsal Roots**, which emerge from the back of the cord. From this junction, nerve filaments are distributed to the arms, legs, and both sides of the body; sensory fibers to the skin, and motor fibers to the muscles.



when there is chronic disease of the nervous system that convulsions are apt to become frequent and persistent. Removal of the cause will generally effect a permanent cure of convulsions.

EPILEPSY—Symptoms.—The only apparent difference between epilepsy and accidental or occasional convulsions in children is one of duration. The attacks are similar; one cannot distinguish between them, but in epilepsy the fits are repeated and the condition is chronic. There are two kinds of epilepsy we need note: a severe form with insensibility and spasms; a milder form with transient loss of consciousness without spasms.

Symptoms of the Severe Form.—There are three stages in the attack:

1. The patient may turn around rapidly, or even run swiftly. More often a terrible cry or low gurgling groan is emitted, and the patient falls to the ground unconscious. The body is stiff and arched upward, with the head thrown back or to one side, or the body is bent sidewise. The face is first pale, but quickly becomes dark or bluish, the jaws are rigidly set, the legs are outstretched, but the arms are bent at the elbow with the fingers tightly clinched in the palms. This is the rigid stage, and lasts but fifteen to thirty seconds.

2. The convulsive stage. The spasms begin. The limbs are jerked violently, the face is contorted and working. The eyes are wide open and rolling, the

Epilepsy

pupils dilated, and the whites showing. The jaw may be firmly set and the tongue or lips bitten, or the mouth may be open with the lips flapping loosely in breathing, and the mouth covered with froth which may be bloody. Sometimes the urine escapes, and less often the contents of the bowels. The fit lasts several minutes.

3. The patient gradually becomes relaxed and quiet, and may recover after a variable time. Sometimes he comes to himself very soon in a dazed and bewildered state at first, and suffers from a dull headache. At other times the patient remains unconscious, with red face and noisy breathing, in a stupor, from which he may be aroused after a time, or may not awake, if left alone, for hours. No memory of the fit is retained.

More often the attacks recur every two or three weeks. Sometimes they happen as often as a hundred times in a day, and occasionally only once in a year or two. They begin more commonly in youth. Following an attack a patient may do violent acts of which he is unconscious, he may have pains in muscles, exhaustion, paralysis, or difficulty of speech, or remain in a dull, despondent, or trancelike state. Sometimes he feels particularly well. In severe, and fatal cases, the fits occur in rapid succession without any intervals of consciousness. Both sexes are equally liable to epilepsy.

Epilepsy Without Spasms (*petit mal*).—In this form of epilepsy there is momentary unconsciousness,

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but the patient does not have spasms. Sometimes it is a mere interruption in his occupation. He becomes suddenly pale, the eyes are fixed, and he stops talking, eating, playing piano or cards, or dressing, only to continue in a few moments where he left off. He may be walking when attacked and continue mechanically, and come to himself finding that he has been unconscious. A glass or spoon or other object which may be held at the time, usually falls from the hand. There may be some confusion in speaking or dizziness after the attack, or the patient may perform some common act unknowingly, such as to partially undress, or even to do acts of violence. There are many varieties of this milder kind of epilepsy, but it usually ends in the severer form with fits, as described above. Fainting is most likely to be confused with the mild form of epilepsy, but in fainting the patient usually falls and the pulse is feeble or imperceptible, while in this variety of epilepsy the patient does not generally fall, and there is a history of similar attacks and the pulse is not much affected.

The severer attacks of epilepsy often give warning of their coming. Thus, for a few seconds before a fit, a person may have peculiar sensations, as a tickling or tingling of the hand, or pressure in the region of the stomach, or strange feeling over the heart, which seems to rise and envelop the head. In others, there may be flashes of light, odd noises or voices, peculiar odors or tastes, or a feeling of terror or strangeness preced-

Epilepsy

ing the attack. In the majority there is, however, no distinct warning or "aura," as it is called. Attacks may occur at any time of day or night and, if at night, they may pass unnoticed for years, although if the bed is wet with urine and there is any injury to the tongue on waking, there is a strong probability that a fit occurred during the night.

Treatment.—During the fit one should loosen the clothing about the neck and body, see that the patient is kept lying down and not injuring himself, and also prevent his tongue from being bitten by holding a piece of rubber, a fold of towel, or cork, between the teeth. If a small body like a rubber stopper, an ink eraser, or a cork be used, a string must be tied to it for safety. This is usually all that is required unless the fit is longer than usual, when the physician may find it necessary to resort to powerful remedies best administered by himself.

The general treatment consists in an abstinence from meat, and from salt, in an outdoor life, and in the use of the bromides. Sodium bromide may be given to advantage, until a physician's advice be procured, stopping it for a time if such symptoms as constant drowsiness, coated tongue, or pain in the stomach and bowels develop. Sixty grains daily is an average dose for an adult, and it may be taken on the food instead of common salt. Laxatives must be freely used, such as rhubarb and soda. Each case must be carefully studied by a physician learned in nervous dis-

eases, as it may be possible to discover some cause and remove it and so cure the disease, and the treatment should only be pursued under such guidance. Marriage of an epileptic should be absolutely forbidden.

Causes.—Epilepsy begins commonly in youth. It is not infrequent that a child has convulsions between the ages of four and six, and that epilepsy appears in about the tenth year. It often begins in females at the menstrual period, and occurs thereafter more frequently at these times. Heredity is the commonest cause; about one-third of the cases show nervous disease, not usually epilepsy, in the parents, such as neuralgia, hysteria, insanity, or “nervousness” in some form, but most of all, alcoholism. Disease of the lungs in the parents seems to be a predisposing factor. Among the more immediate causes of convulsions besides those mentioned above are: steady drinking, exhaustion or poor state of the blood (anæmia), injury, fevers, fright, and indigestible food, some diseases of the sexual organs, and any local cause of irritation.

Outcome.—Epilepsy is usually chronic, and may continue permanently. Life is apt to be shortened thereby. In early life the prospects of recovery are much brighter, but the outlook is poorer in long-continued attacks and in grown persons. Epilepsy, beginning after thirty, is apt to be merely a symptom of brain disease, and offers hope of cure. There is little probability of death in the fit, unless through the

Unconsciousness

patient's accidentally falling into fire or water, or suffering injury in the fall, and occasionally being smothered from lying on the face, as when attacks occur in bed. Epileptic subjects are often peculiar, irritable, and excitable, or dull, and generally become mentally deficient in time. There are many marked exceptions to this rule, and some of the strongest characters in all history have been epileptics, viz.: Mahomet, Napoleon, and Julius Cæsar. Some cases are entirely cured, and the greatest benefit has been obtained in colonies for epileptics which have been established in some of the States.

UNCONSCIOUSNESS; INSENSIBILITY —

General Treatment.—The patient's head should be moved as little and as carefully as possible. Get him to bed, or place him in a lying-position. Loosen the clothing about the neck and body, or remove the clothing, if possible, and replace with nightclothes. If the breathing is of a snoring, noisy, or rattling character, turn the patient with greatest care on his side. Do not try to make the patient swallow anything until consciousness has returned, or it may choke him.

If there has been any injury of the head, or if the face is red, put ice to the head in a rubber bag, sponge bag, or bladder, and keep the feet warm by hot-water bags or bottles. The bowels may be moved by injections of soapsuds, or by five grains of calomel placed on the tongue, if an adult. If the patient does not urinate, the bladder must be emptied every six

to eight hours by passing a soft-rubber catheter which has been boiled five minutes in water and is lubricated with glycerine, the attendant's hands being thoroughly washed before using the catheter. Persons having an odor of alcohol in the breath may be suffering from conditions other than drunkenness, as head injuries and apoplexy are more apt to occur in such individuals, or some other cause of unconsciousness may be also associated. Then, too, mistaken kindness frequently results in an attempt to pour whisky down the throat of any unconscious person. The various causes which more commonly produce unconsciousness are: fainting, head injuries, alcohol, chloral and opium in poisonous doses, apoplexy, sunstroke, kidney diseases and diabetes, epilepsy, and diseases of the brain.

Fainting. — This is probably the most frequent cause of unconsciousness. It is, however, but momentary. The patient becomes suddenly very pale and, if insensibility is complete, falls, and the breathing and action of the heart stop, so that no pulse can be felt.

Fainting may be caused by general weakness and anæmia, indigestion, pain, fright, excitement, "nervousness," or heart disease. It is frequently of no serious import in the young, but in old persons its frequent occurrence may precede apoplexy. Do not raise the patient, but place him flat on his back, loosen the clothing, and raise the feet in the air. Smelling ammonia from a bottle aids recovery. Do not give anything by the mouth till the patient can swallow, and

Unconsciousness

then a tablespoonful of whisky or brandy in water may prove reviving, if you are sure there is no head injury. Mild epilepsy may be mistaken for fainting (see p. 40).

Head Injuries.—The simplest form of unconsciousness resulting from a fall or blow on the head is that accompanying concussion of the brain. Here the insensibility may be short, the patient may be pale and confused, and have nausea or vomiting on recovery. In the severer form the patient is unconscious, but may reply in monosyllables if one shouts at him. If all the limbs are moved there is no paralysis. There may be convulsions occasionally. Recovery of consciousness usually occurs within twenty-four hours, but headache, dizziness, and incapacity for mental work may persist for a considerable time. There is a possibility of abscess or brain trouble, epilepsy, or relapse into unconsciousness after a time, particularly if the patient does not have proper care. The general treatment stated is advisable, with cold to the head, employing cold cloths if ice cannot be used, and heat to the feet. The patient must lead a quiet life for some time afterwards, not returning to business for several weeks.

In the more dangerous head injuries, resulting in bleeding and clots upon or in the substance of the brain, or fracture or breaking of the bones of the skull, with pressure on the brain, there are: complete unconsciousness so that the patient does not respond to any

effort to arouse him; noisy, snoring breathing; slow pulse; and wide pupils. In fracture there is often no external sign, although there may be a depression in the skull, or the broken bones may be felt grating together when the part is manipulated. A continuous flow of blood or watery fluid from the ear is usually a sign of fracture, or the appearance of blood staining of the white of the eye or lid a day or two after the accident. A surgeon should be summoned at any cost in any case of delayed unconsciousness.

The treatment, until skilled assistance is obtained, should be that recommended for concussion.

Alcoholism. — In drunkenness there may be an alcoholic breath and history of drinking. The face is apt to be flushed, and the breathing deep but not noisy and snoring as in apoplexy, and the patient will generally reply in a muttering way if roused by shouting or shaking. There may be some twitching of the muscles, but there are not real convulsions. The pulse and breathing are not noticeably slow, as in opium poisoning.

If the patient has been exposed to cold, put hot-water bottles about him and rub the surface vigorously. If he can swallow, give a dessertspoonful of mustard with a teaspoonful of salt in a glass of tepid water, to empty the stomach, and some cathartic, as five grains of calomel (see Poisons, Vol. I, p. 139). Half a teaspoonful of aromatic spirit of ammonia in water often aids recovery.

Unconsciousness

Opium.—In poisoning by opium or morphine the patient, although unconscious, can usually be roused by shouting and shaking; the breathing and pulse are very slow, and the pupils of the eyes are reduced to pin points. There may be a history of having taken some medicine. For treatment, see Vol. I, p. 144.

Sunstroke.—Unconsciousness from sunstroke usually occurs when we have the favorable conditions for sun- or heat-stroke, and the history of exposure to the heat. For treatment, see Heat-stroke, Vol. I, p. 39.

Kidney Disease.—It will often be impossible for the layman to have any correct idea as to the existence of this disease. A previous history of vomiting and watery diarrhea with dizziness may be obtained, and there may be swelling of the face and ankles from dropsy. The unconsciousness is often preceded by convulsions, as in epilepsy, but the tongue is not injured and the patient does not so rapidly return to consciousness.

Diabetes.—The unconsciousness of diabetes resembles closely that of kidney disease, but the breath in diabetic coma has a peculiar sweet odor like pears, apples, or chloroform. The physician in such cases can determine the nature of the unconsciousness by drawing the urine and examining it.

Epilepsy.—The insensibility begins with the fit; the tongue may be bitten and there may be a history of such attacks, and the patient regains consciousness and apparent health in a short time (see p. 39).

APOPLEXY.—This is more likely to attack men over fifty. The breathing is often loud, rattling, and snoring in character, and irregular. The patient moves arm and leg on one side of the body, while the other lies motionless, showing paralysis of one side of the body. The face may also be paralyzed on one side, the lips being puffed out on that side in breathing. There is, usually, complete insensibility, so that the patient cannot be roused. The pupils of the eyes differ in size. The patient may be also under the influence of alcohol. The limbs are entirely relaxed or stiff on the paralyzed side of the body, and the face is often drawn toward the opposite (unparalyzed) side.

The patient should be put on his back with the head raised, or turned on his side if the breathing is very noisy. Cold cloths or ice should be placed on the head, and hot water in bottles to the feet. Do not try to give food or drink while the patient is unconscious. Five grains of calomel may, however, be dropped on the root of the tongue, and the soft-rubber catheter used after being boiled, to empty the bladder. After a variable time, from a few hours to days, the patient may return to consciousness, usually to suffer from paralysis for a longer or shorter period. Death may occur during the unconsciousness. Patients who are in bed for long periods, especially when paralyzed, must be kept very clean, and be turned from time to time to avoid bedsores about the lower part of the back from pressure. Bathe such parts frequently with

Delirium Tremens

alcohol and water, and see that the bedclothing is smooth under them.

DELIRIUM TREMENS (“*The Horrors*”).—Delirium tremens does not occur in those given to occasional sprees of drinking, even if prolonged, but in the habitual, heavy drinker, and is brought on by an unusual excess in drinking, or by some nervous shock, as happens when the person suffers from bodily injury or an acute disease, especially pneumonia. The attack begins with sleeplessness, depression, and restlessness, for a day or two, and then the patient experiences a mental change. He talks continually in a rambling, disconnected manner, and is in constant motion, wanting to go out to attend to this or that matter, and is commonly filled with fear on account of objects which he imagines he sees, such as rats, snakes, and monsters, all of which drives him into such a state of terror that he is continually desiring to escape, and may try to jump out of the window or attempt suicide. There is generally some fever, a weak and rapid pulse, muscular weakness, and trembling of the hands and tongue.

Recovery is the rule from the first attack, unless some other condition is complicated with delirium tremens, as pneumonia or surgical accident.

After three or four days the patient will secure a good sleep, which is usually the favorable turning point of the disorder, when rapid improvement follows. In fatal cases the ravings, sleeplessness, and restless-

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ness persist, while the prostration and weakness of the pulse increase until the patient dies of heart failure.

Treatment.—The patient must be watched every minute and confined to a room. The attendants must treat him with gentleness and great patience. It may be necessary to restrain the patient in bed if he is weak. A sheet may be fastened across the body and bed, but it is unwise to tie the patient's limbs. Feeding with strong soups, beef tea, milk and raw eggs every two hours, putting considerable red pepper into the broths, is of chief importance. It is best to allow no alcohol. If the pulse is very weak, give aromatic spirit of ammonia (twenty drops in a wineglass of water) every hour. To procure sleep the following prescription may be used every two hours, for two or three doses, if the pulse permits.

R Sodium bromide.....	30 grains
Chloral.....	10 "
Tincture of capsicum.....	10 drops
Aromatic spirit of ammonia..	$\frac{1}{2}$ teaspoonful
Water.....	$\frac{1}{2}$ tumbler

If this does not secure sleep, morphine¹ is sometimes resorted to. A cold bath, or sponging with cold water, may produce a quieting effect, especially if there is fever. It is well to move the bowels thoroughly at the start, with five grains of calomel, or two compound cathartic pills, or other drugs.

¹ Caution. Morphine is a dangerous poison.

Alcoholism

A physician's services are desirable, particularly to discover and treat any underlying and complicating condition, as pneumonia, broken rib, or other injury, to judge whether the patient's general condition warrants the use of such powerful remedies as are sometimes required, and to manage the mental aspect of the case.

ALCOHOLISM (*Steady Drinking*).—The steady drinker tends to lay on fat; his intellect becomes less acute, and he is irritable, restless, forgetful, and dull, especially in the morning. The judgment may become defective, and the mind is sometimes weak. Many exceptions occur in heavy, habitual drinkers who preserve a high degree of mental ability for some years. Epilepsy is sometimes a result. Chronic catarrhal inflammation of the stomach is one of the commonest effects of alcoholism, shown by a coated tongue, bad breath, and sinking feeling in the stomach, in the morning, and nausea or vomiting. The small veins on the face enlarge, producing a characteristic appearance; namely, the red nose and cheeks. There is trembling of the face and tongue. Inflammation of the nerves, especially in the legs, gives rise to pains, numbness, and, frequently, loss of strength. The heart and blood vessels become diseased. The vessels become brittle and are apt to break, occasioning apoplexy. Disease of the kidney often accompanies the change in the blood vessels and heart. The liver is often attacked, and enlargement followed by fatal contraction results.

Consumption is much more common in alcoholic persons. The children of alcoholic parents are more prone to suffer from various nervous diseases, such as neurasthenia, hysteria, chorea, epilepsy, insanity, idiocy, and also from rheumatism and gout. Occasional excess in drinking is much less apt to produce permanent injury than habitual, immoderate drinking. Individuals differ enormously in their tolerance to alcohol.

Treatment.—The most useful and effective treatment can be conducted primarily, only where the patient is under complete control. Absolute abstinence from all forms of alcohol is the first requisite. Feeding every two hours with nutritious food will, in some degree, take away the craving for alcohol. Capsicum, one-thirtieth grain, with quinine sulphate, two grains three times daily, forms a good tonic. The medical treatment must be directed by a physician.

When the general health of the patient has been reëstablished a cure of the habit should be attempted. Means to this end must be carefully selected to suit each case. If the sincere coöperation of the patient can be obtained, an outdoor occupation, at first, with the constant companionship of a suitable attendant, may be tried, preferably at some place remote from former haunts, and, if possible, from all sources of temptation; but hope should be held out that eventually, with mental stamina restored, the patient might be able to resume an environment and occupation perhaps more congenial to him.

Part II

WOMAN AND CHILD

BY

KENELM WINSLOW

CHAPTER I

Hereditv

*How Characteristics are Transmitted—Reversion to Former Type
—Strange Inheritances—Hereditary Diseases—Marriages
Between Relatives—Hopeful Views.*

HEREDITY, broadly considered, consists in the transmission of certain characteristics from parents to offspring. More precisely speaking, it refers to the union of the contents of the germ cells of the parents in merging to form the single cell, which—by its division and subdivision—ultimately results in the production of a new individual. By the germ cells are meant those cells in the ovary of the female which give rise to the ovum or egg, and to those cells in the testicle of the male which form the spermatozoön, the essential body in the secretion of this organ. In accordance with this view, two cells, one from each parent, unite, and their contents form one new cell, which results in a new individual; but the only part of this new individual which will live to transmit its characteristics to a new generation is the germ cell, situated in its ovary if female or in its testicle if male. The infinitesimal quantity of the parental germ cells which is contained in the new germ cells of the offspring is held in

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its sexual organs in trust, until such a time as the contents of one of these cells unites with one of the opposite sex, and so transmits its inherent qualities to a new generation. The characteristics, development, and acquirements of the rest of the individual would then seem to have little if any influence upon these germ cells sequestered in the sexual organs. In fact, it is generally denied by authorities that characteristics acquired by an individual, such as, for instance, special muscular development, skill, or manual dexterity or disability, or a defective or mutilated organ (loss of limb), can be transmitted to the offspring. Strict application of this theory would mean that the essential characteristics of the individual would be handed down, unchanged, from father to son. Experience, however, teaches that variations in the offspring occur, and that certain characteristics acquired by the parent may influence the progeny, but not nearly so directly or extensively as is commonly believed. Peculiar variations in individuals may be dependent upon various causes. They may originate spontaneously—very probably owing to some accident in the fusion and development of the parental germ cells. Marked cases occur as “freaks,” or in plant life as “sports,” such as a tulip possessing seven petals instead of six. Such peculiarities may be transmitted to posterity. We see examples in the inherited web fingers or toes; in the increased number of toes which is transmitted in some families; in the existence and perpetuation of tailless

(Manx) cats. Again, variations in individuals may be due to reversion to an ancient type of ancestry. But this source of variation is much less frequent than the accidental kind we have been describing.

There are three recognized sorts of reversion: first, the tendency seen in offspring to depart from parental characteristics to that type common to their ancestry as a whole; second, resemblance to some particular ancestor; and third, reproduction of the original type of the first ancestors. As exaggerated objects of the latter kind of reversion, or avatism, we have the rare occurrence of several breasts in women; the occasional appearance of stripes in horses suggestive of the zebra, and, probably, the original horse. Moreover, there is a tendency for the offspring to assume a resemblance to a common type of population existing in their neighborhood and country, at the expense of inherited characteristics; an effect of environment counteracting heredity. When individuals of separate races marry, the offspring of the first generation may combine the characteristics of both parents, or simulate one parent in one respect and resemble the other in another, but in later generations there is a tendency in the offspring to revert to one or other of the original parental types.

Thus, following the marriage of a white and negro, after several generations of mulatto, or nearly or completely white, children, there may be a black child born of white parents. In the offspring of mongrels or half-

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breeds there is sometimes a marked reversion to the original type of the species. Thus, in crossing two mongrels—the result of crossing distinct breeds of pigeons—Darwin found the offspring to possess all the characteristics of a wild pigeon and not any of the characteristics of its parents.

Children may inherit some characteristics from one parent and others from the other parent. For example, the child of black and white parents may inherit the features of the white parent and the color of the black parent. Or when the parents differ markedly, the offspring may resemble one parent alone. Again, the offspring may combine the characteristics of the parents—when they differ in any notable respect—as when the child of a very tall and a short parent is of intermediate height. The eyes are said to be an exclusive inheritance from one parent; that is, when one parent has light and the other dark eyes, their children will each either possess dark or light eyes—rarely eyes of an intermediate color.

There appear to be certain inherited racial characteristics. Thus, negroes possess a certain immunity or freedom from malaria, on the one hand, and an increased susceptibility to consumption or tuberculosis, on the other. All savage peoples are more susceptible to contagious diseases, and offer but feeble resistance to their inroads. Even measles becomes a most fatal disorder among them. By the process of evolution the susceptible die out, and the offspring of the sur-

vivors inherit some increased immunity. Certain inheritances are peculiar to certain species of animals; animals in general are exempt from the contagious diseases affecting the sexual organs of man, and are not susceptible to typhoid fever. When we come to consider the inheritance of characteristics, acquired during the lifetime of the parents, we find that our knowledge is chiefly limited to morbid conditions. According to the view we have already noticed that certain cells in the sexual organs reproduce themselves in the offspring, and thus alone continue the line of descent from generation to generation without the influence of other parts of the body, it is difficult at first sight to see how disease of the lung, for instance, can, through the cells in the sexual organs of the parent, reproduce lung disease in the offspring. Such is indeed impossible, and it is so extremely rare that diseases are actually transmitted from parent to child that any such occurrence is denied by competent authorities. That such inheritance, however, does occur in syphilis, where the germ cells of the male may contain the elements of the disease, is apparently indisputable. It must be borne in mind that when a child comes into the world with a disease, the disease is not necessarily inherited in the true sense of the word—that is, transmitted in the germ cells of the parent—the disease may be acquired from germs or poisons circulating in the mother's blood, which are communicated to the child through this medium while it is in the womb.

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Malaria may thus be communicated to the offspring, and it is known that a mother with Bright's disease of the kidneys, or a somewhat similar condition, which causes convulsions in pregnant women, may be the cause, through the poisons in her blood, of a similar disease in the offspring.

The child, while still in the mother's womb, may acquire disease by entrance of germs from the outside world through the natural passages of the mother, and again, disease is sometimes communicated to the infant from the mother during its transit from the womb at birth. In this manner do children acquire that extremely serious form of inflammation of the eyes which has been the source of blindness in most of those said to be "born blind," caused by infection with the germs of gonorrhea (Vol. II, p. 199) occurring in the sexual passages of the mothers. Such an occurrence exemplifies the difficulty which often exists in distinguishing between inherited and acquired diseases. Many children said to be born deaf have probably acquired deafness through undiscovered disease in infancy.

To return to the consideration of the inheritance of diseases acquired by parents. That diseases are thus transmitted is, with few exceptions, untrue. The worst that happens is the inheritance of a generally or specially weak organism. While the germ cells of the parent are not directly influenced by variations, disease, or special development going on in the other

organs, it is probable that they are affected by substances which exist in the blood and act as poisons to all parts of the body—the germ cells in the sexual organs included. Thus, in the larger number of germ diseases of other origin, the suffering and damage inflicted is chiefly due to chemical poisons generated in the process. Hence, the child of an alcoholic father may be so poisoned by the effect of this substance on the parental germ cells that the union of the germ cell of the mother with one of the father will not offset its effect in causing deterioration in the offspring. Special poisons may have a weakening effect on special organs, so that the child may be peculiarly liable or predisposed to diseases of certain organs in consequence. Such is the theory advanced to account for known facts. It is weakness or lessened resistance to certain or general diseased conditions which are inherited and which we can combat—not, fortunately, actual inherited disease—in the great preponderance of cases. When the parental system is poisoned by the products of disease, the nervous apparatus of the offspring is most apt to suffer, since it is a law that the more recently developed organs are the first to succumb to such injurious agencies, and the nervous system of man is the most recent product of bodily development. Not only may a predisposition to certain morbid acquirements be present in the offspring, but a characteristic is likely to appear at the same time of life at which it appeared in the parent.

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Certain natural characteristics are similarly inherited, such as the tendency to longevity; so that the most promising chance of long life is offered to the children of the long-lived. The following diseases are those commonly agreed to be more frequently inherited, although as we have stated, there is transmitted in most cases only a tendency to, or lessened resistance against, these diseases: near-sightedness, astigmatism, color blindness, deafness, obesity, diabetes, some forms of Bright's disease of the kidneys, gout (more frequently in the male line), rheumatism, syphilis, tuberculosis, cancer, skin diseases of certain kinds, and many nervous disorders, as nervous exhaustion, epilepsy, hysteria, paralyses, and insanity. The occurrence of albinos and bleeders is apt to result from inheritance.

Since the same predispositions to disease may exist in those descended from a common ancestry, it follows that marriage between relatives is inadvisable when such tendencies may be doubled in intensity in their offspring. The likenesses existing between brothers and sisters is greater than between parent and child; while the relationship existing between first cousins is practically the same as that between great-grandparent and offspring. The children of early and late marriages are not apt to be so robust as those resulting from marriage occurring at the most favorable time, which is for man at the age of twenty-five; for woman at twenty years. There are many exceptions to this

rule, depending on the health of the parents, etc. It is said that the child inherits the features, shape of the head, sense organs, and constitution from the father; while the mental characteristics may be transmitted from either parent, the shape of the trunk and internal organs more closely resembling the mother. Such a statement is also subject to many exceptions.

Lest too great influence be attached to heredity, it may not be amiss here to recall the vast importance of environment. The tendency of the times, through our greater general enlightenment, is to lay less stress on the importance of heredity as compared to the influence of environment in shaping the development of the offspring. Thus, the children of consumptive parents are very likely to acquire the disease, not through heredity, but through direct exposure to the germs of the disease. Change of environment of the children will show the folly of attributing the disease in them to the curse of heredity.

When we compare certain children reared in the United States with their foreign-born parents we realize the wonderful effect of environment and education in overcoming degeneracy and degradation. The sins of the fathers need not necessarily be visited upon the children if they heed the warnings which such sins offer, and instead of neglecting to follow the simple laws of health, make an effort so to develop and train their bodies that any inherent weakness may be thus overcome. The children of parents possessing de-

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fective vision should be examined, before beginning school life, by a competent oculist (not an optician), in order that they may not suffer damage from eye strain (Vol. II, p. 21). The offspring of the nervous and tuberculous need to be reared so as to strengthen their general resistance against disease by an outdoor life, good food, exercise, and proper mode of existence, with freedom from worry, nervous strain, and dissipation or excesses of any kind.

With the assistance of the advice of an intelligent physician it will usually be found that children may be so reared that the weak points or predispositions likely to be inherited by them from their parents can be in large measure combated by proper environment, training, and education. The subject of heredity is a vast, intricate, and little-understood matter, and we have herein merely touched on some of its more salient features. The view taken by those most conversant with the study is, however, much more hopeful than formerly, as regards the inevitable, or even probable, transmission of taints, predispositions, weaknesses, or disease to the offspring when these can receive intelligent care.

CHAPTER II

Menstruation

Causes and Symptoms—Age of Puberty—Change of Life—Dysmenorrhea—Amenorrhea—Cessation or Scanty Menstruation—Excessive Hemorrhage—Leucorrhœa.

MENSTRUATION is the term used for the flow of fluid from the private parts of women, occurring every twenty-eight days during the period of their sexual activity, from puberty to the "change of life." Several causes have been assigned for the appearance of this flow, such as Nature's effort to rid the body of alleged noxious humors, or the relief of a supposed full-blooded condition, or congestion of the uterus following activity of the ovaries, or a shedding of the mucous membrane lining the uterus, which had been prepared for a pregnancy that did not occur. All these explanations are open to argument, and the fact is, that it is not known why menstruation occurs. It is known only that a nerve influence, starting in the sympathetic nerve system in the pelvis, causes stimulation of the maternal organs periodically. It is probable that the flow would not appear at all, were it not for the erect position of human beings.

The accepted term for menstruation is "being

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unwell" or "indisposed." Race and climate influence the approach of puberty, or the time of life when sexual activity begins in the young woman. At this epoch there are several bodily changes in the girl. Her bust becomes larger, her hips become broader, she puts on more fatty tissue, and hair grows rapidly in the arm-pits and at the lower part of the abdomen. Her manner becomes more reserved, and in all respects she shows the advance of maturity, including more care of her personal appearance as well as a more serious view of life. The approach of the menses, or flow, is accompanied by trifling discomfort, headache, slight irritability, a feeling of weight about the loins, and a little restlessness, if, indeed, there is any premonition at all. There is no more discomfort than that just described, unless some uterine displacement or disease exists. Mothers should calmly instruct daughters concerning the menses, so that they may not be alarmed when it is first seen, and needlessly worry about a natural condition. Among Germans and Anglo-Saxons, puberty, with the first menstruation, usually occurs in the fifteenth year; Hungarians about the same age; Slavs a year younger; Hungarian Jews at thirteen; Laplanders and dwellers in arctic climates at eighteen; while the girls in Egypt and Sierra Leone menstruate at the age of ten years. The social condition influences the function; for girls reared in the city, with more association with the opposite sex, and more sexual temptation, menstruate earlier than girls reared in the

greater seclusion of country localities. There are also strong family traits which influence the function. The women in certain families are all precocious in menstruating, as are women of very strong sexual passion.

In women in whom the function is established, there may be, at each period, swelling of the breasts, with sometimes a production of a little milk; the thyroid gland may enlarge as well as the tonsils, with the result that the voice is altered, and singing is impossible during the period; the heart may beat faster; the temperature may be elevated a half degree; the skin may be unusually rosy, and there may be brown discoloration here and there, especially under the eyes in brunettes. The discharged fluid consists of blood principally, with some mucus. It should be dark red, and should not clot. The flow lasts from three to seven days, and in most women a slight mucus discharge follows for a day or two. With an ordinary period, the woman wears three napkins a day; if more are needed, or it be necessary to wear them double, the flow is excessive. At the forty-fifth year, in most women, the "change of life" occurs; the menstruation ceases, and the period of possible childbearing is at an end. This change is reached after an irregularity in the recurrence of menstruation, covering from six to twelve months. There is some discomfort during this period of irregularity, but it is not to be dreaded or feared.

If the menstruation began after the age of fifteen,

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it will probably cease at forty-five. While if it began earlier, it will probably persist till nearly fifty. Menstruation has been seen in an infant of two years, as well as in an aged woman of eighty years.

While the rule is to menstruate once in twenty-eight days, some women have an interval of only twenty-one days, while others are unwell at the end of every thirty days. When a woman conceives, that is, becomes pregnant, or "in the family way," menstruation ceases, and does not return till after the child has been born. It usually reappears after the mother ceases to nurse the child. When the maternal organs have been removed by surgical operation the woman is never unwell again, and the changes that would naturally come at the change of life, appear speedily.

CHANGE OF LIFE; THE MENOPAUSE, OR CLIMACTERIC.—As has been said, this period is reached between forty-five and fifty years, and some nervous disturbance is commonly experienced. Hot flashes, shortness of breath on exertion, slight faint feelings, restlessness, irritability of temper, dread or depression, especially in the morning, digestive disturbances with loss of appetite, constipation or diarrhea, may all occur, and interfere with the enjoyment of life. After the flow has finally disappeared, following an irregularity of several months, there may be a mucous discharge, at intervals. If profuse flow occurs at this time, there is some uterine disorder present which demands the attention of a surgeon. Commonly,

women endure nervous disturbance from removable causes for years, erroneously thinking they are still undergoing "change of life," and silently suffer, often unnecessarily. A physician should be consulted. Ordinarily, women soon recover their poise and enjoy life, putting on more flesh, and becoming less sensitive, and somewhat less active.

Treatment.—During change of life a woman should be protected from worry, heavy responsibility, and overfatigue. Her digestive organs should be kept in order, the diet being plain and not abundant, while tea and coffee should be reduced to a minimum. Crowded or ill-ventilated rooms should be avoided. Few drugs are needed, if the suggestions given are followed. General nervousness, with sleeplessness, will be controlled by five-grain pills of asafetida, one taken after each meal and at bedtime. Laxatives at bedtime, and the compound sirup of the hypophosphites, a teaspoonful in water before each meal, will assist digestion. It is a bad habit to take stimulants or sedative drugs as a routine matter at this time of life.

PAINFUL MENSTRUATION; DYSMENORRHEA.—As a result of the unnatural conditions of civilization, the majority of women suffer some local discomfort, if not actual pain, at each menstrual period, though usually without interference with the pursuits of their daily life. Absolutely painful menstruation that needs treatment is caused by gout or rheumatism, neuralgia, congestion of the maternal organs, or ob-

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struction, unless due to arrested development of or deformity of the sexual organs. Neuralgia as a cause operates in those who suffer from hysteria, malaria, syphilis, poverty of the blood, excessive amount of blood, or neurasthenia. It may also be the cause in those who live lives of excitement, if not of actual dissipation, or who are devitalized by mental or physical overwork, by masturbation, or by excessive sexual indulgence. Congestion and resulting inflammation are frequently a cause of dysmenorrhea, as a result of childbearing or frequent sexual intercourse, and also as a result of disorders of the pelvic organs and viscera.

Obstruction may result from displacement of the uterus or the existence of a narrow passage through which the flow escapes, retention of the fluid permitting clotting, and clots being painful to discharge.

Symptoms.—The symptoms are pain below the pit of the stomach and above the pubic bone, in the loins and back, and possibly shooting down the thighs. Rarely the breasts are tender. The pain may be dull and constant, or intermittent, sharp, and piercing; and there may be a dragging, heavy feeling about the waist and abdomen. The general health may suffer, and there may be nervous symptoms, due to the severe pain and also to preëxisting nerve disorders. Nausea and vomiting may accompany the pain, if severe, and derangement of the digestion may be added, to continue after the flow has ceased and the attack is over. Rarely

the patient faints from the severity of the pain, or becomes hysterical.

In cases of congestion the pain may be simply an exaggeration of that which is experienced between the periods. In the obstructive form, the back pressure from retained fluid excites uterine contractions giving rise to severe pain (uterine colic), which ceases only when the clotted discharge is forced out, to return when the cavity of the uterus is again filled, and the strong agonizing contractions again expel the fluid. Undeveloped or malformed genitals may present obstructions with similar results. The diagnosis of the condition causing dysmenorrhea can be made only by a physician who has an opportunity to make a study of the individual. The outlook for recovery is worst in the congestive cases, unless they are due to exposure to cold, or to remediable pelvic or digestive troubles. In the neuralgic variety, as well as in the obstructive cases, the outlook is good, if the patient will carry out the treatment ordered, and permit the operative interference indicated.

Treatment.—(1) Rest in or on the bed during the whole time the pain lasts; abstinence from sexual excitement till the dysmenorrhea, as a condition, has disappeared, husband and wife occupying separate beds.

(2) Out-of-door life, in the sunshine, as much as possible, and the use of suitable indoor exercises (see Vol. IV, p. 48).

(3) The diet should not include indigestibles; meat

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should be eaten but once a day; the kidneys should be flushed out thoroughly, the patient drinking at least six glasses of water every day. Constipation should never be allowed for more than twenty-four hours. The fluid extract of cascara, taken in ten-drop doses, after one or all three meals, will obviate this trouble.

(4) Baths. Hot sitz baths will help much to relieve the pain during the attack, as also a full hot bath of fifteen minutes' duration. Turkish baths and also sea bathing benefit many.

(5) Underclothing should be woollen, during most of the year, and in summer at least a flannel bandage should be worn about the abdomen.

(6) For married women only, hot-water douches, as hot as the elbow can comfortably bear, are useful during the continuance of pain, and between the periods, daily. The patient should undress for each douche, lie on her back in the bath tub, with knees up and spread apart, and the feet drawn back to the body. A two-quart fountain syringe should be used, with elevation of about five feet, filled twice. The same posture may be taken on a table, with rubber sheet draining into a pail or foot tub. Unmarried women should not use douches, except on a physician's advice.

(7) Local applications of remedies, insertion of tampons, and electricity can be employed only by a physician. Of drugs, phenacetin may be taken, in doses of two to ten grains, three or four times a day during the pain, on rare occasions; or bro-

mide of sodium, dissolved in a quarter tumbler of water, ten to twenty-five grains, three to four times a day. Asafetida, five grains, three or four times a day, in pill form, agrees with the bromide, and increases its efficacy. If no physician can be procured, Hayden's Viburnum Compound, in doses of one teaspoonful every hour till pain ceases or three doses are taken, will probably control the pain, and is useful in such trouble between the periods in doses of one teaspoonful in water twice or three times a day for a week before the flow is expected. Do not take bromide if you take the viburnum compound. The "rest cure" is of great relief to many women suffering from dysmenorrhea, especially if they are of the pale, thin, anxious type.

ABSENCE OF MENSTRUATION; AMENORRHEA.—The nonappearance of the monthly periods, when they are once established, does not usually indicate any disease of the womb or female sexual organs, nor any particular disorder whatever, but is merely a symptom which may be safely ignored if the general health is good. It is, however, more frequently caused by a bloodless condition of the body, and for this reason—while this condition should not be neglected—it is best that flowing should not appear until there is blood enough to spare. If the flow be absent in a young girl, and yet she have at regular monthly periods all the sensations peculiar to menstruation, it is well if she be examined by a physician, for

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the purpose of determining whether there is any obstruction to the escape of blood. This is very unusual; when girls pass the age of menstruation, and show no signs of entering this phase of life, it is because they are poorly developed sexually, through deficiency of blood.

Entire absence of any symptoms of menstruation extending into adult life may indicate an absence of sexual organs—a most rare occurrence. The occasional absence of flowing at the expected periods, during the first year of menstruation, is natural; but after the function has become once established, it may cease owing to many causes.

Any disorder or circumstance which so reduces the general health as to impoverish the blood and weaken the nervous system will lead to stopping of the monthly periods. Among these are overwork, overstudy, insufficient food and exercise, exposure to cold, sitting on stone steps or cold ground, or wearing damp clothes, or bathing in cold water at the beginning of menstruation. So at this time will powerful emotions, as great fright, anger, or anxiety produce cessation of the usual periods. An overfat condition or obesity tends to end in early suppression of menstruation, so that, unless it be overcome, a fruitless marriage may result. Displacements of the womb and local disorders occasionally give rise to scanty or delayed menstruation. Anxiety lest pregnancy may occur, in the newly married especially, or in the woman who has immorally exposed herself

to the possibility of pregnancy, may also cause a delay in the monthly flow. Conversely, a strong desire of the young wife to bear children may also occasion a stoppage of menstruation, which may be accompanied by a flatulent distention of the bowels simulating pregnancy, giving rise to what is known as "phantom tumor."

Many diseases which greatly lower the general health produce a suppression of the monthly periods, such as Bright's disease, heart disease, and tuberculosis. The last does not generally lead to stoppage of menstruation till late in the disease, and there is no basis for the popular belief that a cessation of menstruation is a cause of tuberculosis. Pregnancy is the most frequent cause for the arrest of menstruation. Among the signs and symptoms of pregnancy, besides the stoppage of the periodic flowing, are nausea and vomiting, more commonly in the morning. This differs from the vomiting of indigestion in that the patient often feels hungry as soon as the vomiting stops, the appetite being good at other times, and no pain in the stomach or other symptoms of indigestion.

Enlargement and slight tenderness in the breasts is common; a darkened area about the nipples appears and increases in size, and the veins on the breasts become visible. Slight puffiness of the skin about the nipples is particularly suggestive of pregnancy. Movements of the child are first felt by the mother from the latter end of the fourth month of pregnancy (on an

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average, at the twenty-second week), but are frequently imagined. A radical change of climate and circumstances may stop the monthly flow for several periods, and often occurs in women immigrants who come to this country from Europe.

Treatment.—Absence of menstruation in young girls who are pale and listless, thin and poorly developed, should be considered as merely one of the symptoms of their debilitated condition. This state demands treatment, and the menstruation will appear in due time, and it need cause no anxiety if the general health is improving. Such girls should be taken away from school or relieved of the demands of society, and be sent into the country, or be made to live an outdoor life, to have ten hours daily sleep, to take nourishing, simple food, and not worry about the nonappearance of menstruation. The taking of some emulsion of cod-liver oil in cold weather, or iron at any time—if there is pallor—in the form of Blaud's pill, three times a day for six weeks or so, is beneficial.

CESSATION OF MENSTRUATION.—Later in life, before the menopause, after menstruation has been well established and regular, its cessation is commonly due to debility with anæmia. We see the following picture, with some variations: there are paleness, loss of appetite, dyspepsia, constipation, flatulence, palpitation or fluttering of the heart, cold hands and feet, colorless or pale yellow discharge from the front passage, and a feeling of weight in the lower part of the

abdomen. This condition is common in overworked and underfed young women, and in others as well. The treatment consists in the taking of a "modified Bland's pill," three times daily for several months, stopping the pill for a week at the end of each month; in the keeping of early hours, with plenty of sleep and outdoor exercise; in a nourishing, simple diet, avoiding sweets, cakes, pies, fried food, tea and coffee, and fresh hot bread, and in correcting constipation (p. 233) and in relieving the leucorrhœa (p. 86).

SUDDEN ARREST OF MENSTRUATION.—

If the monthly flow has begun, and is suddenly checked by fright, exposure to cold, etc., there may be a chill, fever, headache, backache, bearing down pains in the lower part of the abdomen, and pains in the legs, together with frequent urination. The patient should take a hot sitz bath or full bath for twenty minutes; she should take a teaspoonful of Hayden's Viburnum Compound in a wineglass of water every two or three hours, and go to bed. If the pain continues and a physician is not available, a suppository containing one-quarter grain of belladonna extract should be introduced into the rectum. The regular periods may be suppressed for several months following such an attack.

SCANTY OR DELAYED MENSTRUATION.

—When the monthly flow is scanty, or delayed in appearing, there are often symptoms like pain low down in the abdomen, thighs, and legs; backache, pain and fullness in the top and front of the head, and cold

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hands and feet. All the symptoms which generally indicate that menstruation is coming on are present, and yet no flow; and this condition may last for days, or even a week or more, before it occurs. Or, in other cases the flow is very scanty and affords but little relief. In these cases it is best for married women to take douches, as hot as the elbow can bear, of six quarts of water, lying flat on the back with the hips raised on a douche pan, and using a fountain syringe. These should be taken night and morning every day between the periods, and stopped when flowing occurs. Young girls should not take them. The general health must be improved in every way possible, as suggested in the previous section, and if relief is not speedily obtained recourse should be had to a competent physician.

Delayed menstruation in women who are conscious of the possibility of pregnancy should receive no treatment. If the condition is actually one of pregnancy, there is no drug or other means known to the medical profession by which it is possible for a woman to bring on a miscarriage without greatly endangering her life, apart from the great immorality and crime of the proceeding. The same difficulty of causing a harmless abortion, the same danger to the patient's life, and the same degree of crime obtain if the patient is but a week pregnant. Persons who perform abortions are usually as incompetent as they are criminal, and blood poisoning and death of the patient are not infrequent results. The very secrecy required is of itself sufficient to pre-

vent the abortionist from giving the patient proper care, even if he were competent to give it.

There is no justifiable cause for interrupting pregnancy save when its existence threatens the mother's life, which may occur in certain circumstances. Even in such a case a consultation of reputable physicians is considered necessary before it is proper to determine upon such a grave and important step. The only course open to women who fear pregnancy is to wait. (For signs of pregnancy, see p. 93.) If she is not pregnant the result will prove it, and no harm will have been done by waiting; if she be pregnant that will also become evident, and no harm will have been done. There is no reason for hasty action in such a case, and every reason for waiting until time reveals the true condition. A physician may afford comfort, and should be consulted if possible. He may at an early date be able to give a probable opinion of the condition but it is often impossible to determine positively the existence of pregnancy before the third month of this state, or even later.

Women illegitimately pregnant should either marry or arrange to give birth to a child at full term privately, and so prevent the publicity which ruins after life. There are many societies and charitable institutions nowadays which not only assist women in this lamentable state, but aid in the care and disposition of the child. Here, as in most other cases of physical trouble, the advice of a good, competent physician will

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prove of more real value to the unfortunate woman than anything else.

FLOWING; BLEEDING OR HEMORRHAGE FROM THE WOMB.—Under this head we will consider two kinds of flowing: (1) Excessive bleeding at the monthly periods; (2) bleeding from the womb at other times. The same causes which lead to excessive loss of blood at the monthly periods often occasion bleeding from the womb at any time. Any condition which brings a greater amount of blood to the womb than is natural may produce hemorrhage from this organ. Among the more common causes of bleeding from the womb are: inflammations of the womb and its appendages, the tubes and ovaries; tumors, as cancer and fibroid tumor, occurring usually after the age of thirty-five; retention of the afterbirth following abortion and normal childbirth, displacements of the womb, and general disorders, such as debility, beginning tuberculosis, heart disease, malaria, kidney disease, obesity, and any acute disease.

Usually excessive hemorrhage from the womb indicates some disease of that organ. It is impossible to say what is excessive loss of blood during the monthly periods, because women naturally differ exceedingly in this respect. The flow of the first few years may generally be used as a basis for deciding the normal amount, and that loss of blood which does not produce any immediate weakness and lack of energy may also be regarded as normal. In general, three napkins a day for six

days will be necessary. Excessive menstruation in young unmarried women and girls is usually owing to debility; attention to the general health, the use of iron, and the other means for improving the general condition recommended for the treatment of painful menstruation (p. 73) will usually suffice, with rest in bed for a day or two.

In other cases of undue loss of blood, during the monthly period in married women, an examination by a competent physician is always desirable after menstruation has ceased, to determine the cause and by this means take steps to remedy the trouble. Women, while lax about attending to unusual flow of blood at their regular periods, are even more careless and culpable in neglecting flowing from the womb at other times, because such hemorrhage is often a sign of grave trouble which demands the immediate attention of a physician. Especially true is this of flowing after the "change of life" is passed, as it is sometimes the first symptom to call our attention to cancer, which may be cured by early operation. Also the fibroid tumor, which is seen usually in women over thirty-five, first makes itself known by long periods of flowing varied by intervals of immunity. Fibroid tumor of the womb does not always require removal, but operations are done with almost invariable success in the early stages.

Hemorrhage following an abortion is usually a sign that a part of the afterbirth has remained in the

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womb, and necessitates its immediate removal by a physician to avoid the dangers of possible blood poisoning. Irregular bleeding from the womb in young married women, especially if accompanied by any signs or symptoms of pregnancy, as morning nausea and vomiting, soreness and enlargement of the breasts, and absence of the regular periods, with perhaps pain in the lower part of the belly, should cause the patient to seek a physician's advice at the earliest moment, because sometimes such a condition is found when pregnancy exists in a tube instead of in the womb. In these cases an operation is imperative to avoid rupture of the tube, as the child grows, a condition which results fatally in many instances. Operations for this condition are also almost invariably successful.

The most common cause of flowing during pregnancy is threatened abortion, when the patient should immediately take to bed, lie there quietly, take fifteen drops of laudanum ¹ in water or a tablespoonful of pargoric, and secure a physician as soon as possible. Rarely women continue to flow at their regular periods throughout pregnancy, and still more rarely at irregular periods, without its being significant of any abnormal state which is discoverable. Flowing during the latter months of pregnancy, even if slight and occasional, is suggestive of a faulty position of the after-birth in the womb, and the fact should be immediately brought to the notice of a physician in order that he

¹ Caution. Take only on a physician's order.

may take steps to avert what might be a dangerous hemorrhage at childbirth.

Treatment.—It is rare that the flowing is so excessive during the monthly periods that it becomes dangerous or requires special treatment to stop it. We will here describe the general methods which may be used with ease and safety by the patient or attendants to arrest undue flowing from the womb, whether at the monthly periods or at other times, and without regard to the cause.

Rest in bed with the head low, and the foot of the bed raised some six inches from the floor, is of the greatest importance. The patient must keep as quiet as possible and take twenty drops of fluid extract of ergot every hour for three or four doses if the flowing does not cease, except during pregnancy, when the ergot should be omitted. The use of injections of six quarts of water as hot as the hand can bear, with the patient lying as directed flat on the back on a bed, or douche pan, are most valuable. The injections may be best given with a fountain syringe into the front passage, and should be repeated once in four hours. A teaspoonful of alum added to the last quart of water in the syringe may increase the action of the injection in stopping the flow.

In order to stop dangerous flowing which cannot be arrested by the means we have described, it is necessary to fill and stuff the cavity of the front passage or vagina, and sometimes the womb, with clean cheese

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cloth or gauze, but this cannot be attempted except by a physician.

Usually the simpler methods we have noted will suffice to arrest flowing until medical assistance can be obtained. The most severe flowing is apt to occur directly after childbirth, and this may be best controlled by firm pressure on the lower part of the belly over the womb, grasping it if possible between the thumb and fingers and keeping up steady pressure for half an hour or more regardless of the moderate suffering it may cause the patient (see Childbirth, p. 98).

The bowels should always be kept regular as a means of avoiding flowing. Sexual intercourse is not permissible during periods of excessive hemorrhage from the womb.

LEUCORRHŒA; A DISCHARGE FROM THE FRONT PASSAGE OR VAGINA OF WOMEN.—

Leucorrhœa is not a disease in itself, but rather a sign of disorder of the female sexual organs, or of the whole system. When it occurs for a few days before and after the monthly periods, during the change of life, and accompanying pregnancy, it may be regarded as a natural occurrence if not associated with any other trouble suggestive of disorder of the sexual organs or of the body as a whole. In the ordinary conditions of health there should, however, be no perceptible discharge from the vagina in women, and if such occurs, with the exceptions just noted, it should be regarded as a symptom of local or general disorder. The dis-

charge is not by any means always white, as the common term "whites" would suggest, but yellow, brown, reddish if mixed with blood, or colorless like the white of an egg. It varies greatly in color, consistency, and amount.

Among general disorders causing a discharge from the front passage are: debility, anæmia (a condition caused by poverty of the blood and accompanied by paleness and weakness), malaria, tuberculosis, and acute diseases, as scarlet fever, measles, diphtheria, and typhoid fever. Exposure to heat, dampness, and emotional excitement may cause leucorrhœa. The discharge is usually white or watery when the trouble follows a disturbance of the general system, and not thick and yellow like matter from a wound.

"Whites" is one of the most frequent symptoms of inflammation of any part of the sexual organs—the womb, tubes, ovaries, and neighboring structures; also of tumors and injuries of these organs, as following tears occasioned by childbirth. It is also produced by faulty positions of the womb, by irritating injections, by too frequent sexual intercourse, etc. In all these conditions of local disease of the sexual organs there are usually present other symptoms, such as pain in the lower part of the abdomen and back or in the front passage, frequency and perhaps pain in urination, and the discharge is more apt to be thick and yellow like that coming from a boil. Such conditions should not be neglected, since sometimes serious disease

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may be averted by submitting to treatment at the hands of a competent physician during the early stages of inflammatory disease of the sexual organs. In young children, whites is often due to worms, and should receive local treatment by a medical man. Leucorrhœa is a common disorder of old age, owing to natural changes in the womb, and the discharge is apt to be profuse, watery, and very irritating. In cancer of the womb, on the other hand, the discharge is dirty-colored, has a bad odor, is copious, and often accompanied by flowing. As the result of a continuous discharge pouring out on the skin about the entrance to the front passage or vagina, there are produced much irritation and itching, and often chafing and rawness of these parts.

There is then a simple white or watery discharge from the front passage with no other unhealthy local or general disturbance, in which case it is safe for the patient to try the simple and harmless measures recommended below. There are also the other conditions in which there are symptoms of local inflammation in some part of the sexual apparatus, as pain, disturbances of urination, flowing, and thick discharge like pus which demand immediate attention of a physician; and finally there is a third class of cases where the discharge is caused by some disorder of the general health, for which the patient should also consult a doctor. While the discharge itself causes a drain on the system and weakness, it is more often the case that the

discharge is caused by a general condition of weakness (or local inflammation) than that the general weakness is the result of the discharge.

Treatment.—The treatment which we here advise is suitable when the discharge is not associated with other symptoms suggestive of disorder of the sexual organs, as pain, disturbance of urination, flowing, etc., nor with general ill health. The patient should wear a pad of absorbent cotton over the entrance to the front passage, which is held in place by a napkin worn in the ordinary manner. Many women have a prejudice against wearing cloths for a discharge of “whites,” apparently convinced that covering increases the discharge; this is not so, and cleanliness is an important agency in cure. The pad should be changed as often as it becomes soiled.

An injection into the front passage of boiled water as hot as the elbow can bear should be made with a fountain syringe, night and morning. The patient should lie on her back with the hips raised upon a pan or receptacle to catch the outflow. It is useless to take douches while sitting up. About six quarts of the plain water should be first injected, and then from a teaspoonful to a tablespoonful of alum should be added to a quart of warm water, and this injected last.

Itching of the external parts is relieved by the injections which remove the cause, the irritating discharge, but if this is not sufficient, a teaspoonful of pure carbolic acid and two ounces of glycerin may be

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thoroughly mixed with a pint of hot water, and employed to bathe the itching parts. Sometimes powdering them with starch or using zinc ointment will prove more serviceable.

A discharge from the front passage, beginning suddenly and accompanied by frequent and painful urination and swelling, and soreness of the external parts, is usually extremely suggestive of gonorrhea, a very grave contagious disorder communicated from man through sexual intercourse. It is sometimes seen in little girls who acquire the disease from towels or other objects contaminated with the discharge. Patients with this trouble should stay in bed, use only hot water to bathe the external parts, and take half a teaspoonful of sweet spirit of niter with ten drops of tincture of belladonna three times daily in water for relief of the painful urination. "Whites" is not capable of being communicated from woman to man, except in the case of the discharge due to this disease (gonorrhea). Gonorrhea is the more frequent cause of that inflammation of the womb and tubes, which, if neglected, ultimately requires the removal of these organs by surgical operation. It demands early treatment, therefore, by a skillful physician, as well as the other disorders of the sexual organs or conditions of general ill health which cause "whites." The treatment which we have described then, is only useful in "whites" which are due to slight disorders, or until proper medical aid can be procured.

CHAPTER III

Pregnancy

Advice as to Food and Clothing—Sleep and Air—The Mental State—Care in Childbirth—The Young Mother—The Baby's Needs.

HYGIENE OF PREGNANCY.—The symptoms and signs of pregnancy are discussed in another section (p. 93). The duration of pregnancy usually extends for 280 days from the end of the last menstruation. It is well to acquaint the family doctor with the fact of pregnancy as soon as it is probable, as frequent examinations of the urine are necessary, and also an examination of the parturient or maternal canal in a mother pregnant for the first time, to ascertain whether the child may be born without hindrance, and to determine the position of the child.

Exercise is essential to strengthen the muscles on which an easy labor largely depends, but stretching, lifting, jarring, jumping, the use of sewing machine, bicycling, riding, and dancing are to be avoided. Daily walks and light household work are very desirable.

A large amount of food is requisite, but the separate meals should not be large, especially as pregnancy advances. To avoid this there should be light lunches taken between the regular meals and at bedtime. One

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of the dangers of pregnancy consists in the large amount of waste matter resulting from the activity of the vital processes going on in the body, and this is best combated by the use of daily baths in tepid water, and the drinking of six or eight glasses of cool (not iced) water during the day, preferably half an hour before and between meals, and at bedtime. Milk or other fluids, as cocoa, etc., may be substituted to some extent for the water. Alcohol in any form is usually harmful, and there should be great moderation in tea and coffee drinking. Fried food, pastries, and sweets must be avoided, and meat should be eaten but once a day.

Since the clothing should be loose, corsets are usually inadvisable, and a linen waist, sold for this condition, may be worn, to which the lower garments and garters are fastened. Circular garters do harm by causing enlarged veins. The teeth are prone to decay during pregnancy and require in consequence especial care. They should be brushed carefully after each meal, and be examined at frequent intervals by the dentist. It is important to avoid constipation, and if food of the proper character will not prevent it medicines may be employed (see Constipation, p. 233). Pregnant women require eight hours sleep daily and an abundance of fresh air. As much as three pints of urine should be passed daily, and if this does not occur, when the quantity of liquid advised is taken, a physician should be consulted. Sexual intercourse is not allow-

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able during pregnancy. A discharge is quite frequent from the vagina during pregnancy, and this may set up irritation and itching of the external parts. An injection consisting of a pint of tepid water containing a tablespoonful of boric acid may be taken daily with a fountain syringe for this trouble, and the external parts washed frequently with the same. To relieve itching a solution of baking soda in water may be applied, or cloths saturated with it may be laid on the itching parts. A solution of carbolic acid in hot water (one teaspoonful of the strong acid to the pint of hot water) is also useful as a wash, followed by the application of carbolized vaseline.

Vomiting and nausea are not uncommon during the first months of pregnancy. The "morning sickness" is best avoided by lying in bed till after a cup of hot milk or cocoa has been taken, and an extra half hour has passed, then rising to eat a moderate breakfast. Neuralgias occur occasionally, particularly about the face, and also pain in the upper part of the back of the thigh, resembling rheumatism or sciatica, more troublesome when walking. The pain in the face may proceed from a decayed tooth; otherwise it may be relieved by a hot-water bag or external use of the menthol pencil.

The pain in the thigh is due usually to pressure of the child's head on the nerves in the back of the cavity within which the head of the child rests. If the patient assume a position upon a bed or couch face downward,

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and resting only on the knees and chest for ten minutes, or until beginning fatigue, twice or thrice daily, the position of the child may change and the pressure on the nerves of the mother be removed. This should more properly be done with the consent of the family physician. Varicose or enlarged veins upon the legs and thighs are natural consequences of pregnancy. Relief from the discomfort caused by them may be obtained by the use of the elastic stocking fitted by the makers; or by the application of a flannel bandage, before arising in the morning, which should be started at the toes and wound from thence up the leg to the top of the thigh. After retiring at night the bandage is removed and rolled. The bandage is made at home by sewing together strips of cheap flannel cut on the bias, four inches wide, and is more efficient than the elastic stocking.

Excessive secretion of saliva is common in pregnancy, but cannot readily be prevented. Frequent passing of urine is also troublesome, occurring more often during the first three or four months from pressure of the child, and during the last two months from alteration in the shape of the bladder. This cannot be prevented, but if the urine becomes thick and cloudy the condition should be referred to a doctor. Cramps at night attacking the legs, are annoying accompaniments. They may be prevented oftentimes by rubbing the limbs from below upward before retiring. Sleeplessness, more usually during the latter months, is occasionally

a vexatious complication. The use of a glass of warm milk, or a glass of beer, before going to bed, or when wakeful during the night, may serve as a preventive. This means failing, sodium bromide (ten grains) dissolved in a quarter of a glass of water and taken at 6, 8, and 9 P.M., may relieve the symptom. More powerful remedies should not be resorted to without medical advice.

During the last four weeks of pregnancy the breasts should be bathed daily, especially the nipples, with boric-acid solution (two tablespoonfuls to the pint of water), and vaseline applied to the nipples. If the nipple is depressed and shrunken it may be pulled outward, but much manipulation of the breast is inadvisable as it stimulates the womb. If at any time during pregnancy there appears any escape of blood from the vagina, or if headache becomes severe, or pain in the stomach or dizziness develop, or nausea and vomiting return during the later months, the physician should be immediately acquainted with the facts, since these are, or may be, danger signals not to be neglected.

The mental state of the pregnant woman is often subject to change, as one of the symptoms of her condition. Her character may become much altered, and she may become irritable, suspicious, and difficult to live with. All things tending toward cheerfulness should surround her, and the cares incident to business, social, or educational matters, she must forego. The unnatural mental state more often appears in the middle

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period of pregnancy, and should call for the attention of a physician. The shape of the child in the womb is not in any way influenced by any sights, frights, or impressions which its mother may have experienced during pregnancy; neither is its character changed one iota by any specially delightful or uplifting influences to which the mother may subject herself, with this end in view, during pregnancy. Furthermore, there are no known means by which one can either regulate, or even foretell the sex of the expected offspring, notwithstanding popular teachings to the contrary.

LIST OF ARTICLES FOR USE DURING CONFINEMENT

One dozen clean sheets.

One dozen clean towels.

Four pieces of unbleached cotton, one and one-quarter by one half yard for binders.

One piece of flannel, eighteen inches long and eight inches wide, for binder for the baby.

One rubber sheet, or piece of enamel cloth long enough to reach across the bed one yard wide.

One douche pan, of the rectangular variety, with a square shelf to put beneath the patient.

One fountain syringe.

One-half pound of absorbent cotton.

Four dozen pads for absorbing discharge.¹

¹ The pads which are worn after confinement are made from cotton batting wrapped in cheese cloth and are sterilized by being put into a slow oven inclosed in a covering of cotton cloth and baked until they are of a

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Linen bobbin one-sixteenth inch wide, or very narrow tape one foot long for tying the umbilical cord.

One pair of scissors.

One bottle of seven-grain corrosive sublimate tablets.¹

One-eighth pound of boric acid.

Four cheap nail brushes wrapped in gauze and boiled fifteen minutes.

One ounce of boric acid dissolved in a quart bottle of previously boiled water.

Four ounces of brandy or whisky.

One-half ounce of fluid extract of ergot.

One jar of vaseline.

One cake of Castile soap.

Two or three agate or china hand basins.

One slop jar.

One pan under bed for afterbirth.

An old rug, or better, oilcloth or newspapers spread about bed under patient to protect carpet.

Four quarts of hot and as much cold water which has been boiled.

Child's clothing and woolen blanket to wrap child in.

light russet brown. The packet should not be opened till some of the pads are to be used, the rest of the pads being kept well covered at other times. A sample pad, covered with cotton, is placed in the oven and by looking at this one can decide when to take the others out. The pads of cotton batting should each be about 3 inches thick by 4 inches wide and 8 inches long, and wrapped in cheese-cloth strips 2 feet long, each end of which is pinned to the binder about the body. ¹ Poisonous.

Care in Childbirth

CARE IN CHILDBIRTH IN THE ABSENCE OF A PHYSICIAN.—The duration of labor averages eighteen hours in the case of the first child and about twelve hours with women who have already borne children. The time is, however, subject to considerable variations in individual instances. Moderate pain in the lower part of the back is usually the first symptom of labor, followed by severe pains, with intervals of rest, in the lower part of the abdomen. Before the child is born “the waters break,” that is, the membranes inclosing the child rupture and liberate the fluid in which the infant has been floating.

A full bath should be given the patient before the beginning of labor, and the inside of the thighs, the lower part of the belly, and the parts about the entrance to the “front passage,” as well as about the rectum, should be scrubbed with soap and warm water for ten minutes. The bed on which the patient is to be delivered must be supplied with clean sheets and pillow cases. It is well to protect the center of the bed by laying a comforter (or better, a rubber sheet or piece of enamel cloth) folded two feet wide, across the clean sheet, and then covering this with another clean sheet folded over the comforter and tucked in at the sides of the bed. After labor these are to be removed.

The patient should be encouraged to walk about from the first pain till the child’s head begins to cause bulging of the parts about the outlet. Labor may be hastened in some cases if the patient does not cry out,

but holds her breath, braces her feet against the foot of the bed, and pulls on a sheet attached to it during the pains. This should not be practiced toward the end of labor. The hands of the attendant must be absolutely clean. After caring for the finger nails, the hands and forearms should be scrubbed with warm water, soap, and a nail brush for ten minutes and rinsed in clean boiled water.

When by frequent inspection it is seen that the child's head is so low down that the parts between the front and back passages bulge, and the head becomes visible during a pain, the patient is to be placed on her left side with her thighs drawn up against her body and a pillow between her knees, and pressure should be made by the attendant's hand against the bulging parts to prevent the expulsion of the child until the parts are properly stretched, so that they will not be torn during delivery. Tell the patient not to strain. Keep up this pressure during the pains for fifteen or, if possible, thirty minutes, when it is best to allow the child's head to escape between the pains.

When the head is born, see that the cord is not wound about the neck; untwist it if it is and support the head. If the rest of the body is not soon expelled, press and knead the lower part of the mother's belly; or, if this does not succeed after ten minutes, extract the child by gentle force, pulling steadily on the head and liberating one arm at a time. As soon as the child is born, an assistant should sit by the side of the mother,

Care in Childbirth

and, pressing on the outside of the lower part of the mother's abdomen, should grasp the womb between the thumb and fingers of one hand and hold it firmly until the escape of the afterbirth.

At the earliest moment after the birth, the child's eyes should be bathed in water (which has been previously boiled and cooled), or, preferably, in a strong solution of boric acid (as much acid as the water will dissolve). Then the infant should be held upside down by the feet for an instant, while the attendant introduces his little finger into the baby's mouth and clears it of mucus or other matter interfering with breathing. The mouth and nostrils should then be gently washed, tongue and all, with warm solution of boric acid. His face should be propped up so as to prevent his inhaling any of the fluid which has escaped from the mother. A folded bunch of old muslin should be used as a temporary pillow for him, as he lies close to the mother's thighs.

The child is still attached to the mother by the cord. There is no hurry about cutting the cord until it ceases to pulsate, after which it must be tied at once at two points; at a point two inches, and at a point four inches from the attachment of the cord on the child's body.

A clean, narrow piece of tape or soft string is wound about the cord tightly and tied securely at each of these two points so as to stop bleeding after the cord is cut. The cord is then severed midway between these two points with a clean pair of boiled, sterilized

scissors. If any bleeding occurs from either cut end of the cord it should be stopped by tying another piece of tape about it.

If the baby does not cry, or breathe easily, spank it gently, and slap it on the soles of the feet. If it does not cry, and breathing is still feeble or has ceased, try immersion. In one of the bowls provided, pour hot water, about 110° F. Into the other bowl, pour cold water. Grasping the infant by the feet and hands, immerse him, all but his head, first in one bowl of water and then in the other, every few seconds. If after he has been dipped thus six times in each bowl he still fails to breathe, lay him on his back on the table, and raise his arms back over his head as far as possible, and after three seconds carry them down, flex them, and make pressure on his chest with them, just as in resuscitating a drowned person. During this process the infant must be surrounded with warm (*not hot*) bottles, and partially covered with dry flannel or thin, old blanket.

If artificial respiration fails, while he is still kept warm, use "mouth-to-mouth inflation." This is done in the following way: Cleanse the mouth with clean warm water. Put your little finger in the baby's mouth at one side, and hold his tongue down. Place your mouth over his closely, and blow into his lungs with your own breath, steadily and powerfully, over and over, counting six deliberately between the inflations, and compressing the lower part of his chest after

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each inflation. Do not abandon this procedure under thirty minutes, unless the baby begins to breathe before this time has passed.

A blue baby is easier to resuscitate than a pallid, relaxed baby, whose heart has evidently been quiet for some time. In either case, if the color changes to a rosy hue there is a good chance of saving his life, and the inflation should be continued indefinitely. A baby who has been thus brought back to life should be examined every ten minutes during the first twelve hours of his life, and if breathing fails again, the same process of inflation should be repeated.

In ordinary cases, as soon as the cord is cut and the child is breathing and crying naturally, he should be immediately put in a warm place by his mother's side, or in a basket in a warm room, and well covered. During the time the infant is being attended to, the assistant has been compressing the mother's womb through the abdomen, and by this method preventing bleeding, and hastening the expulsion of the afterbirth. If the uterus contracts rapidly, and all bleeding ceases, the mother may at once fall asleep for a few minutes while the nurse still grasps the uterus. If over a half hour elapses after the birth of the child, and the afterbirth has not come away, its delivery may be secured by pressing with force upon the lower part of the mother's belly, kneading the womb through the abdominal walls, and squeezing the afterbirth out, but *not* by pulling upon the cord, which is a dangerous proceed-

ing. When the afterbirth appears at the outlet it should be removed slowly by a screwing motion so as to twist the membranes into a rope, lest they be torn and remain behind.

CARE OF THE MOTHER AFTER CHILD-BIRTH.—An attendant, still exerting moderate pressure upon the womb, should sit beside the patient who should be permitted to rest on her side or on her back, as she wishes. She should receive at once a teaspoonful of fluid extract of ergot in a little water, and, after resting a half hour, be thoroughly cleansed of blood with a clean wash rag and a solution of corrosive sublimate (one tablet in a pint of water), or with boiled water, but not turned on her side in the process. The binder is now applied about the body from below the breasts to a point below the hips, and snugly fastened with safety pins. Beneath the binder should be placed a folded towel over the uterus. A pad is then placed over the entrance to the front passage, and held in place by attaching each end to the binder with safety pins. The clothing and bedclothes must next be changed, with as little disturbance of the patient as possible, and a clean sheet, folded three times, laid across the bed under the middle of the patient's body to protect the mattress.

After this is completed, the room should be darkened and the patient covered warmly, as a chill often occurs naturally after childbirth, and she should be kept absolutely quiet, see no visitors, and have three or

Care of the Mother after Childbirth

four hours of complete rest. If there should be at any time much bleeding from the womb, firm pressure must be made immediately on the lower part of the belly over the womb, and kept up for half an hour despite discomfort to the patient. At the same time, the fluid extract of ergot may be given in half-teaspoonful doses hourly, until four doses are taken. After four hours of rest the patient may change her position and lie on the side, if she desires, and the baby may be put to the breasts, first to one, then to the other, at six hours intervals till the milk comes, and after this time the baby should nurse every two hours. The substance in the breasts, before the milk comes, is a laxative. Till the mother's milk arrives the baby should receive no food except a little sweetened milk diluted with three times its bulk of water.

The pads ought to be changed as often as they become soaked with the discharge, and should not remain long enough to acquire any odor. Before changing the pads, and after bowel movements and urination, a pitcher of warm water containing corrosive sublimate (one tablet to the pint) should be poured slowly over the external parts to wash off blood and discharge while the patient is lying on a bedpan. The urine must be passed once in eight hours, and considerable difficulty is sometimes experienced in doing so within this time after labor. The sound of running water, the use of hot cloths over the lower belly, and the injection of hot water into the bowel, while lying on a bedpan, will

generally accomplish a successful result. This failing, and in the absence of a physician, the patient may sit upon a vessel, but this is to be AVOIDED IF IN ANY WAY POSSIBLE. If still unable to pass urine, the attendant must use a catheter and draw off the urine (Vol. IV, p. 252). Pains in the womb, occurring after labor ("after-pains"), are relieved by massage over womb, and by hot poultices over lower part of the belly. The sick room should be well ventilated, and the patient sponged all over with warm water, once daily.

The diet for the first day consists of gruels, milk, broths, toast, weak tea, cocoa, and cereals; after that time an abundance of ordinary, simple food is permissible unless there is fever or indigestion, but uncooked vegetables, potatoes, and fruits, except oranges and grapes, are to be avoided. The bowels should be moved on the day after labor by two compound cathartic pills, or hourly teaspoonful doses of Epsom salts dissolved in a cup of water, and followed by a cup of plain hot water. An injection of soapsuds into the bowel should be given if a movement has not occurred six hours after the taking of the cathartic. The bowels should be moved daily by laxatives or injections, always using a bedpan. Douching of the vagina is generally inadvisable.

The breasts are apt to cause trouble on the third day or so, when the milk secretion is beginning. To avoid this, as the breasts begin to grow tense, full, and painful, they should be covered with a layer of

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cotton batting, and drawn together by a tight bandage eight inches wide placed about the body, and held well up by straps of cotton cloth over each shoulder attached to the upper edge of the bandage before and behind. A piece of absorbent cotton should be laid between the two breasts, and some starch dusted in the crease to prevent chafing and soreness. The pressure of the bandage prevents the breast from filling up. An opening should be made over each nipple in the bandage so that the baby may nurse. Night and morning the breasts should be rubbed with the oiled hand, if there are any lumps in them, beginning gently and stroking the breast from the outside toward the nipple, when the milk will begin to flow, and, after a time, the tenderness and lumps will disappear altogether. This should not be done, however, if the breasts are actually inflamed, that is, if the skin of the breast is reddened, or if there are fever, pain on moving the arm nearest the affected breast, or deep throbbing pain. In such a case, stoppage of nursing, the application of an ice bag to the inflamed breast, and a surgeon's services are essentials.

To prevent "broken breast" or abscess, besides the use of the breast bandage and massage, it is well that the patient take an ounce of Epsom salts, if the milk is very abundant, on the third or fourth day after labor. Then to avoid future abscess, which may occur any time during the nursing period, it is desirable that the child's mouth and the mother's breasts be washed with

boric-acid solution, before and after each nursing, and that vaseline be kept on the nipples in the intervals. If this treatment be faithfully followed, and the breasts be kept absolutely clean, it is unlikely that cracked nipples will occur, and these are the cause of most late abscesses of the breast. Massage and bandaging of the breasts may be stopped as soon as they cease to be troublesome. If the baby does not at first take the breast well, the nipples may be gently drawn out, and a little milk and sugar placed on them will entice the baby to begin nursing. The patient may usually be allowed to sit up in bed about the tenth day, and can, at the beginning of the second week, remain out of bed on a lounge or in a chair, and get about the house at the beginning of the third week.

The great danger of "childbed fever" may be absolutely avoided by perfect cleanliness in regard to the patient, as just described, and this applies just as fully to the attendant, who should always wash her hands thoroughly before touching the patient; and all clothing and articles coming in contact with the patient must be scrupulously clean. The occurrence of fever, during the first week after labor, is the first sign suggestive of blood poisoning (from entrance of germs into the womb), and demands the immediate skill of a surgeon. The temperature should, therefore, always be taken twice daily, for at least ten days after labor, and 100° F. is the danger signal.

CHAPTER IV

The Care of Infants

Bathing the Little One—Its Clothing—Taking the Air—Weighing as a Guide to Growth—The First Teeth—Nursing and Weaning—Special Diets.

CARE OF THE BABY.—Immediately following the tying of the navel cord, the baby's face and eyes should be washed. It is best to let boric-acid solution flow directly into the eyes from a cup (using as much boric acid as the water will dissolve), so that they are thoroughly cleansed. The stump of the navel cord is dressed by wrapping it in absorbent cotton wet with alcohol, or with the dry cotton if alcohol is not at hand. The baby is then anointed all over with warm sweet oil or vaseline, wrapped in a flannel, and put in a warm place, but not bathed for some hours. From time to time the baby must be watched to see that the navel cord does not bleed, and if it does, another piece of narrow tape or cotton string, previously boiled, must be tied tightly about the stump.

The cheesy matter may be washed off the body in a few hours with warm water and Castile soap, but the baby should not be put in the bath tub for about ten days. Until that time, daily sponging may be done

with warm water, or, if the baby is feeble, it must be rubbed with warm oil instead. The dressing over the navel is kept in place by a loose, flannel binder. The cord should drop off about the fifth day, and any raw spot remaining should be cleaned by pouring on water which has been boiled, and then dusting on dry boric acid and applying absorbent cotton.

Bathing.—After the tenth day the baby should be bathed daily in a tub. First wash the head and face and dry them; then soap the body with Castile soap and place him in water at the temperature of 100° F., while supporting his head and back, and wash off the soap. Avoid chilling in every way. A soft, boiled wash rag is more suitable than a sponge. A cloth should be kept separate for use about the buttocks. The eyes should be bathed daily with boric-acid solution (one-quarter teaspoonful to pint of water). Any soreness or discharge from the eyes should demand the immediate attention of a physician (see Vol. II, p. 18). Chafing is avoided by scrupulous cleanliness and changing of diapers as soon as soiled or wet; also by dusting in the folds of skin a powder consisting of a mixture of starch, three parts, boric acid, one part. If the skin is very delicate, the bran bath may be used to advantage. This is made by tying one pint of bran in a bag of cheese cloth and placing it in the baby's bath for five minutes, and then squeezing it out thoroughly into the bath. The bag should then be dried and may be used again.

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Drying should be done with a soft towel without rubbing the skin. If there is a rash on the body, it is wiser to omit the bath altogether until it is gone. After six months the bath may be reduced to 95° F.; after the end of the first year to 90° F., which is continued during the second year.

Clothing.—A bellyband, four inches wide and long enough to encircle the body and overlap four inches, should be worn the first six months. After this a knitted band may be used for two years. Most babies are dressed too warmly in the house, and the rooms are overheated. The thinnest gauze shirts are most suitable for summer, the next to the heaviest flannels in winter. Thick coats and leggings in winter, worn only when the infant goes outdoors, are better than heavy flannels worn all the time.

The writer is indebted for many valuable suggestions as to the hygiene and feeding of babies to Dr. L. Emmet Holt's most practical book entitled "The Care and Feeding of Children," than which there is no better guide of its kind for mothers.

Temperature.—The nursery should be kept at a temperature of 68° F. during the day; never above 70° F. at any time, and not below 65° F. at night, for the first three months. After the first year it may be as low as 45° to 50° F. at night. The windows may be open at night after the first three months, except in very cold weather. If the child is born in hot weather, of course the windows may be open at any

time. It is well to air the room after the bathing time and before bedtime. There should be no cooking, washing, or drying clothes in the nursery, and there should be no unnecessary curtains, hangings, or upholstery in the room, which should be large and sunshiny and heated preferably by an open grate. A gas stove for heating is unwholesome, except for temporary use for the bath. The baby may go outdoors in summer when one week old; in winter on warm days when three months old, if kept out of the wind. A temperature below freezing, melting snow, or high winds, make outdoor airing inadvisable at this age. At one month, airing of the baby in the nursery while dressed and in the crib may be begun, at first, for fifteen minutes a day; later, it may be continued for an hour. This may be done in all but the most severe and inclement weather. To accomplish the airing, the windows of the nursery are opened wide as possible, doors being shut and a screen used, if necessary. When eight months old the baby may go outdoors in a carriage if the temperature is not below 20° F. The best hours are the middle of the morning and afternoon. Sleeping while in the carriage in winter is allowable if the wind and sun are not in the baby's face, and if the feet and body are well covered. The infant is as well off in a carriage as in the nurse's arms outdoors at any age. Colds may be best avoided by keeping the nursery cool, by not overdressing indoors, and by bathing the chest and back with cold water (60° F.), while

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the baby sits in warm water at the close of the daily bath.

Weight.—The weight of a baby is the best guide we have in indicating whether the food is sufficient and of the right kind, and whether the infant is rightly flourishing. Therefore the baby should be weighed regularly every week. During the first week there is commonly some loss; from the end of the first week to the sixth month the average gain should be from four to eight ounces a week; from this time to the end of the first year, from two to four ounces each week. An average baby should weigh twelve pounds at three months; fifteen pounds at six months; seventeen pounds at nine months; twenty and a half pounds at one year.

The fontanel, or open spot in the top of the skull under the scalp, should close at fourteen to eighteen months. The failure of the fontanel to close at the end of the second year indicates some arrest in development, which may be due only to previous malnutrition or to some more serious developmental irregularity.

The baby holds up his head at the third or fourth month; sits up unsupported at the end of the seventh month; and stands with assistance at about the end of the first year. At fourteen or fifteen months baby will usually begin to walk unassisted, although this is not to be encouraged. Baby usually begins to talk and say "mamma" and "papa" at one year. If the child does

not speak at all at the age of two years, there is probability of deafness or general arrest of development, which may prove the first sign of idiocy. There are, of course, many exceptions in cases of simple tardy development.

Teething.—Babies are teething from the fifth month till two and a half years old, when the first set of twenty teeth, consisting of six front teeth and four back teeth on each jaw, should have been cut. The two central front teeth on the lower jaw appear first, between the fifth and the ninth month of life. The four upper central front teeth are cut between the eighth and twelfth month. The remaining two lower front teeth and the four foremost back teeth (two on each jaw) come between the twelfth and eighteenth month. The eye teeth (between the front and back teeth on the upper jaw) and the stomach teeth (in the same position on the lower jaw) appear between the eighteenth and twenty-fourth month. The four hindermost back teeth come between the twenty-fourth and thirtieth month. At one year there should be six teeth, at one and a half years twelve teeth, at two years sixteen, and at two and a half years twenty teeth.

Although too much stress is commonly laid upon the digestive symptoms produced by eruption of the teeth, there is no doubt that there is some connection between the appearance of the teeth and the various digestive conditions which usually accompany them. At such times digestive disturbances, which might

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otherwise be slight, are very apt to be much more severe. It is, however, true that such digestive upsets are more often due to improper feeding than simply to the dentition. At such times there may be fretfulness, increased drooling, and often a low grade of fever. The child puts his hands in his mouth; the gums are red and swollen; sleep is interrupted; the appetite lessened; and the presence of curds in the stools indicates a decided interference with the digestion.

Nursing the Baby.—After the mother has rested for six or eight hours following childbirth, the baby may be put to the breast once in four hours until the milk comes, which occurs on the third or fourth day. After this time the baby should be nursed every two hours from 6 A.M. until 10 P.M., with one feeding at night at 2 A.M. The baby should be put upon both breasts at each feeding. The baby should not be allowed to nurse more than twenty minutes at a feeding. While nursing the left breast the baby is held on his right side with his head resting on the left arm of the mother, while the mother lies on her left side. The reverse is true when the baby nurses the other breast. When the mother sits up, she should lean slightly forward and raise the breast with the fingers of the free hand to keep the weight from pressing against the baby's nose, when nursing.

Great regularity must be observed in the times of nursing. This is very apt to be neglected, but is of utmost importance. Too frequent nursing causes the

milk to be richer and favors cracked nipples, which in their turn lead to abscess of the breast. If the nipple is short and cannot be readily nursed by the baby, or if the nipples are tender, it is well to try a nipple shield, which must be kept clean, as directed for the nipples of nursing bottles (p. 128). A breast pump is also often valuable in the first days, with which to withdraw the surplus milk when it is coming too rapidly into the breasts, threatening hardness and soreness. At other times a breast pump may be useful to draw the milk for the baby to whom it is fed in a nursing bottle, when for any reason it cannot nurse.

The food of the nursing mother may be, in general, that which is ordinarily taken. Notwithstanding popular notions to the contrary, there are few articles of food which cause disturbance of the baby through the milk. To promote milk secretion, large quantities of liquid, as milk and gruels and cocoa, taken by the mother, not only at meals but between the regular meals, are useful. Beer or the malt extracts will rarely prove beneficial; as a general rule alcohol, as well as tea and coffee, are not desirable.

Of much greater consequence to the baby is the mental state of the mother, for all emotional excitement is prone to disturb the quality of the milk—as worry, grief, fright, passion, and fatigue. Water should always be given the baby from the first. Beginning with a spoon, it may be given several times a day; later, from a nursing bottle. If the water is not unquestion-

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ably pure, it must be boiled and cooled. The intervals between the feedings should be the same for different ages as those laid down for bottle feeding (p. 122). Most women for their own sakes should nurse their children, unless suffering from a severe chronic disease or very delicate. Subsequent good health of the mother depends largely upon the return of the womb to its former size. Contraction of the womb is never complete or satisfactory if the mother does not nurse her child. Exercise outdoors and regularity of the bowels are very important for the nursing mother.

If the baby cries after nursing, suckles a long time, sucks his hands or sleeps poorly, does not gain in weight, has colic, or if curds appear in the feces, it usually shows that the milk is either deficient in quantity or quality. If these signs are marked, then bottle feeding must be resorted to altogether; in other cases the bottle may be used only for the night feedings, in order to allow the mother a complete rest. Vomiting immediately after feeding generally signifies that the baby has taken more than he will hold. In this case feed only from one breast, or for a shorter time, or stop the baby for intervals of rest during nursing. If the baby vomits some time after nursing, it is because there is indigestion from too rich food. Lengthen the intervals between nursing, give a little water before nursing, and let the mother eat less heartily—especially of meat. Constant colic or pain in the nursing baby calls for the mother to eat less meat, to take more

exercise, and to lead a calm, easy existence, or, in the last resort, to stop nursing in favor of the bottle. Constipation in the nursing baby can rarely be overcome by treatment of the mother except by increasing her diet as to meat and milk, by regulation of her digestion, and by securing for her daily bowel movements.

Weaning.—The time of weaning babies from the breast depends largely upon the condition of the baby and mother. If the baby is not gaining or is not developing properly, he may be weaned at six months, or even earlier, but if he and also the mother are flourishing, the weaning should not be begun until eight or nine months and completed by twelve months. Weaning should, however, be avoided in very hot weather by prolonging the nursing or by beginning bottle feeding earlier, unless the indications for it are very urgent. In beginning the bottle feeding, in the case of a baby who has taken the breast for some weeks, give one bottle daily at first of a milk mixture suited to a baby of half the age (p. 122), and after a few days increase the strength of the mixture, if the milk does not cause colic or vomiting or bowel disturbance. If it does, give even a weaker mixture. The quantity should, however, be the same as that suited to the age of the baby (p. 122). The strength of the milk is to be gradually increased so that in two or three weeks the food will be that suited to a bottle-fed baby of the same age. Gradually in-

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crease the number of bottles daily. If weaning is done after the eleventh month, begin feeding from a spoon or cup. All babies should be made to take nourishment from a spoon or cup after the age of twelve or thirteen months. If it becomes necessary, this may be accomplished by starving the infant until it will take milk as desired.

FEEDING OF INFANTS FROM THE BOTTLE.—When a mother is unable for any reason to nurse her child, he may usually be reared with perfect safety on cow's milk, so modified as to resemble human breast milk. Such feeding can be more intelligently directed by a doctor with experience in the care of children, but when such a physician is not available, the mother or nurse should be able to take upon herself the task by following directions with care.

Composition of cow's milk.		Composition of an average human breast milk.	
Fat (represented by cream)...	4%	Fat.....	4%
Sugar.....	4%	Sugar.....	7%
Proteids (represented by curd)	4%	Proteids.....	1½%

In comparing the foregoing tables, contrasting the composition of cow's milk and mother's milk, we notice that cow's milk differs in these respects: the proteids (the substances which form with water the curd of sour milk) of cow's milk are so in excess that cow's milk must be diluted with twice its bulk or more of

water to render it fit food for a newborn baby. This is especially so since the proteids of cow's milk are not nearly so digestible as those in mother's milk. Then if we so dilute cow's milk, we have not enough fat or cream. Therefore, instead of diluting plain milk for infant food, we dilute the top-milk or cream. Again, the sugar natural to milk (milk sugar) is deficient in cow's milk as compared with mother's milk—particularly after we dilute it—so that we must add sugar. Milk sugar, which can be procured of the apothecary for from twenty-five to sixty cents a pound, is generally used and agrees more often than ordinary cane sugar. If economy is of any importance, or milk sugar is not obtainable, common sugar may be employed unless it causes colic, wind, and distention of the bowels, when all sugar must be left out of the food for the time, and milk sugar used in preference in future. Cow's milk is acid, while human milk is alkaline, which requires that we add an alkali to cow's milk to make it resemble mother's milk in this particular. For this purpose we use either limewater or soda and water in the same proportions. Limewater is bought at the druggist's; soda and water is made by dissolving one level teaspoonful of baking soda (bicarbonate of soda) in one quart of water, which has been freshly boiled. This may be safely used as long as it lasts if kept in a corked bottle in a cool place.

Finally, while mother's milk is free from germs, cow's milk, as ordinarily obtained, swarms with them,

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and often contains manure and other filth, and sometimes the germs of consumption, scarlet fever, diphtheria, typhoid fever, etc. So that to render cow's milk safe, it is always wiser to heat it to a point which will kill germs under the following conditions in hot weather: when milk is of uncertain cleanliness (which is often the case); or when milk has to be kept some time, as in traveling. Given a good milk, it is not generally desirable to heat it, except in hot weather (to kill the germs which cause the summer troubles), for cooked milk is not so wholesome for the baby, and may cause constipation and other troubles.

There are two essentials in the production of good milk: absolute cleanliness in the handling of milk from the time it is withdrawn from the cow till it reaches the consumer; and rapid cooling, as soon as it is milked, by setting the cans or bottles holding the milk in ice or cold water, and keeping it cool thereafter until used. For infant feeding, milk should either be obtained fresh from a nearby source and cooled as soon as milked, or should be bought in bottles in which the top-milk may be left undisturbed until one is ready to make the baby's mixture. Milk which has been knocking about for some time in bulk is not suitable for infant feeding, as cream—after it has once risen and is mixed in with the milk again by shaking—does not readily rise a second time.

The utensils necessary for making up the milk mixture for babies are: one dozen round, eight-ounce

nursing bottles; one dozen black rubber nipples (either straight or with ball-like top, and with three small holes through which milk will just trickle); one eight-ounce measuring glass or graduate; one brush for cleaning bottles; one two-quart glass preserve jar for mixing the various ingredients; one one-ounce Chapin dipper with which the top-milk may be dipped out without getting it mixed with the rest of the milk in the milk bottle. Such a dipper may be bought for twenty cents.

A spoon may be used to dip top-milk from the bottle, but the Chapin dipper, above described, is preferable. Pouring off of the top-milk is to be avoided, as it is very inaccurate. Some absorbent cotton to stopper the nursing bottles with, and two wide-mouthed bottles for soda and boric acid, with a tall quart cup in which to heat the separate nursing bottles before feeding the baby, complete the outfit.

The following tables should be used in feeding babies during the first year. In the first table are stated the quantities of milk and the times at which the baby should be fed at various ages under a year.

In Table II will be found names and quantities of the ingredients necessary to make twenty ounces of a mixture of cow's milk suitable for an infant from birth to the end of the third or fourth month. The top-milk used is obtained by removing the upper third (or upper ten ounces) from a quart of fresh

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TABLE I

Rules for Feeding Healthy Infants during the First Year (Holt)

AGE.	Interval between meals by day.	Night feedings (10 P.M. to 7 A.M.).	Number of feedings in 24 hours.	Quantity for one feeding.	Quantity for 24 hours.
	Hours.			Ounces.	Ounces.
2d to 7th day.....	2	2	10	1 - 1½	10-15
2d and 3d weeks.....	2	2	10	1½-3	15-30
4th and 5th weeks....	2	1	10	2½-3½	25-35
6th week to 3d month.	2½	1	8	3-5	24-40
3d to 5th month.....	3	1	7	4-6	28-42
5th to 9th month.....	3	0	6	5-7½	30-45
9th to 12th month....	4	0	5	7-9	35-45

milk after it has stood in a quart glass bottle for four or five hours in a cool place. If the milk is delivered in a glass bottle and the cream is risen, it may be removed at any time as long as the milk is not sour. Only that quantity of the top-milk should

TABLE II

Receipts for Milk Mixtures for Use from Birth till End of Third or Fourth Month

RECEIPTS.	I.	II.	III.	IV.	V.
Top-milk.....	2 oz.	3 oz.	4 oz.	5 oz.	6 oz.
Sugar (even table-spoonfuls).....	1	1	1	1	1
Soda and water..	1 oz.	1 oz.	1 oz.	1 oz.	1 oz.
Boiled water.....	17 "	16 "	15 "	14 "	13 "
	20 oz.	20 oz.	20 oz.	20 oz.	20 oz.

be used which is called for in the table. The top-milk must not be poured off but dipped out with a spoon or Chapin dipper. One can also make a milk similar to the top-milk just described by mixing one part of ordinary cream sold by dairies with an equal part of plain unskimmed milk. This is sometimes more convenient.

It is usually more convenient to make up enough of the milk mixture to last twenty-four hours. In the table above, the receipts call for only twenty ounces. To make twenty-five ounces, add one-quarter more of each ingredient; to make thirty ounces, add one-half more of each ingredient; to make thirty-five ounces, add three-quarters more of each ingredient; and to make forty ounces, double the amount of each ingredient. If milk sugar is used, instead of ordinary sugar called for in the table, take double the quantity required in the table.

If we add the quantities of the ingredients in any one of the columns devoted to the five receipts in Table II, we will find that they amount to twenty ounces, without the sugar, which adds very little to the bulk when dissolved.

The top-milk in Table III is obtained by removing the upper half of a quart of fresh milk, after standing in a glass quart bottle for four or five hours, as described before; or by mixing the ordinary cream sold by dairymen with plain milk—one part cream, three parts plain unskimmed milk.

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TABLE III

*Receipts for Milk Mixtures for Use from the End of the Third
or Fourth Month until the End of the Twelfth Month*

RECEIPTS.	I.	II.	III.	IV.	V.
Top-milk	7 oz.	8 oz.	9 oz.	10 oz.	11 oz.
Sugar (even table- spoonfuls)	1	1	1	$\frac{1}{2}$	$\frac{1}{2}$
Soda and water . . .	1 oz.	1 oz.	1 oz.	1 oz.	1 oz.
Boiled water	12 "	11 "	10 "	5 "	3 "
Barley water	4 "	5 "
	20 oz.	20 oz.	20 oz.	20 oz.	20 oz.

If milk sugar is used, take twice the quantity ordered for ordinary sugar in the table. If limewater¹ is employed, use the same amount as the soda and water called for in the table in place of the latter.

Directions for Making the Milk Mixtures.—That there may be no misunderstanding as to the details of feeding infants, we will suppose that we are beginning to feed a newborn baby. We do not begin to feed milk until the second day. Before this time the baby receives every two hours from the bottle one to two ounces of warm sugar-water (one level tea-spoonful of ordinary sugar to half a pint of boiled water). In preparing the milk, the person's hands, the bottles, and all the utensils should be perfectly clean to start with. First dissolve the sugar in the boiled water, the required quantity of water being

¹ See Vol. IV, p. 268.

measured in the graduate, then remove the top-milk from the bottle—the upper third for the receipts in the second table, the upper half for those in the third table—and measure the required amount of the top-milk in the graduate, pour it into the two-quart jar, add the sugar and water, and finally measure the required amount of soda and water in the graduate and mix it with the other ingredients in the jar.

In making a milk mixture for the newborn babe, we will first consult Table I, in which we find—reading the upper line across the page—that from the second to seventh day the infant should be fed every two hours, with two feedings at night (at 12 P.M. and 4 A.M.), amounting to ten feedings for the twenty-four hours of one to one and a half ounces each, or a total quantity of from ten to fifteen ounces for the twenty-four hours. Now turning to the second table, we see under Receipt I, which is intended to be the first used, that there are required to make this receipt—reading down the first column—two ounces of top-milk, one even tablespoonful of sugar, one ounce of soda and water (which has been previously prepared as directed above), and seventeen ounces of water, which has been freshly boiled. We then measure the liquids in the glass graduate, and the sugar in a clean tablespoon, and mix them all in the two-quart glass jar. In measuring the sugar, it should be remembered that two scant dipperfuls equal one ounce by weight of the sugar. This makes twenty ounces.

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which is more than we need for the twenty-four hours, but it is better to follow the table, although a little milk will be wasted.

Now, as was stated, it is wiser to heat the milk for thirty minutes sufficiently to kill any germs in it during the warmer months, as at this time they multiply most rapidly and produce diarrhea. From early June till late October in New England, for example, the milk may be treated in this manner. The most exact way is to buy a thermometer made for the purpose without any frame—just the long glass tube—and place it in the bottle of milk while it is heated to a temperature of 160° F., and kept at this point for thirty minutes.

The simplest method, and one approximately correct, is to place the two-quart jar containing the milk mixture for the next twenty-four hours' feeding upon a saucer in the bottom of an open kettle, and then to pour enough tepid water in the kettle so that it will come up as high on the outside of the jar as the milk does on the inside of it. The kettle is then placed on the stove and the water is brought slowly to a boil. Just as soon as the water in the kettle comes to a boil, the kettle should be moved on the very back of the stove and the jar left for half an hour in the water. Then the hot water is poured out of the kettle, and the jar is rapidly cooled by pouring first tepid, and then cool, and finally cold, water into the kettle. When more than one quart of milk mixture is required for the

twenty-four hours' feeding, and the milk is to be heated, it is better to heat the quantity of top-milk required for the twenty-four-hour mixture in the two-quart glass jar, as described, before adding the sugar, soda and water, and boiled water to it. Otherwise, the whole amount would be too large to heat readily in this manner.

The nursing bottles are next filled by inserting the glass funnel in each bottle and pouring in the required amount suited to the age of the baby—in this case of the newborn, one ounce—and it is well to make twelve bottlefuls, as one may be spilled. The nursing bottles may be supported by packing them in a bread tin and should be stoppered with a plug of absorbent cotton and immediately put on the ice in warm weather.

It is always wise to taste the milk before making up the twenty-four-hour mixture, to be sure it is not sour. Neither the milk from one cow, nor the milk from cows giving rich milk—as Jerseys—is as desirable as the mixed milk from an ordinary herd.

Feeding is begun in the morning at 6 or 7 o'clock, and continued with regularity each two hours till 8 or 9 P.M. When about to feed the baby, the bottle is taken from the ice and warmed by standing it in a tall quart cup of warm water, deep enough to cover the milk in the bottle. The temperature of the milk may be tested by allowing a few drops to flow on the wrist; it should feel warm, not hot. A flannel bag

Feeding of Infants from the Bottle

should be used to cover the bottle and keep it hot while the baby is nursing. The nipple should be tested after it is attached to the bottle to see that the milk flows properly, that is, drops rapidly from the bottle. A baby should not be allowed to nurse more than twenty minutes, at the end of which time the bottle must be taken away. Jouncing or disturbing the baby after eating does harm in causing vomiting and indigestion. He should be put quietly in his crib.

In regard to the quantity of milk suitable for each feeding as stated in Table I, it may be said that the larger amounts may be given to the larger babies having strong digestions. Babies should be held in the arms of the nurse when fed during the first two months, except at night; after this age the baby may lie on his side in a crib, while the nurse holds the bottle bottom up. An infant must be wakened, if asleep, at the appointed time for feeding during the day, but may sleep as long as he will without being fed at night.

Care of the Bottles and Nipples.—After each nursing the bottle should immediately be rinsed in water and left standing, filled with water containing half a teaspoonful of baking soda; and once daily all the bottles must be washed inside with brush, soap, and hot water, and then boiled for twenty minutes in plain water. The nipples when not in use should soak in a solution of boric acid (as much of acid as the water will dissolve) till such a time each day as they are

turned inside out and all washed with hot soapsuds. Twice a week the nipples are placed in boiling water for five minutes.

Directions for the Use of the Various Milk Mixtures.—It is always wiser to begin with the first receipt for the weakest mixture in Table II for infants fed from birth, or even in those weaned when several weeks old, and then gradually increase the strength as the child will bear it, going from one receipt to the next stronger. For example, Receipt I in the first table may be used on the second or third day, and continued for two days, and then Receipt II may be tried. At the end of a week or ten days Receipt III may be used, but after this time the strength should be increased slowly. A small, delicate infant may not be able to take Receipt V until two or three months old, while a large, robust infant may digest it readily at a month. The receipts in Table III are used after the infant has been on Receipt V in Table II, and appears to need more nourishment. Receipt I of Table II may then be begun at two or three months, and after a week or ten days Receipt II may be tried, and after the baby has been fed on this for two weeks or so Receipt III may be attempted. When Receipt III has been used for a month, Receipt IV, and, later, V, may be given, and the baby continued on it until ten to twelve months old.

In the early months if one receipt seems too weak, as shown by the fact that the baby cries for more food,

Feeding of Infants from the Bottle

while the bowel discharges are natural and yellow without curds, and if the baby is not gaining sufficiently in weight, the next stronger mixture may be tried, beginning with the smallest quantity recommended for the age in Table I, and gradually increasing the quantity, but using the same receipt. The baby should usually have the same receipt for several days without changing, except to increase the amount at each feeding until we reach the proper quantity for each feeding suitable to the age. It is much more serious to overfeed than underfeed for a short time. If too large a quantity of food is given the baby, he may vomit it at once, or have wind in the bowels and colic, and be fretful and even lose weight, although the appetite may be good or even ravenous.

If the food is too strong for the baby, he may vomit sour, buttery-smelling milk, or have colic, and pass curds in the bowel discharges. It will be found necessary to reduce the strength of the food for a good while after such an upset.

During the first weeks, then, the baby's food should be slowly and gradually increased, first in strength, then in quantity. After the fourth or fifth month it may not be necessary to increase the strength for months, only the quantity. If the baby is doing well, he is satisfied with the food, is gaining six ounces or so a week, and has no disturbance of the stomach or bowels. If there is vomiting or colic, or if curds appear in the feces, immediately remove one or two ounces of

milk from each bottle and replace this amount with boiled water, and if this does not relieve the trouble, dilute the milk mixture with an equal quantity of water and give the smallest amount at each feeding suitable to the age. In severe vomiting and diarrhea withhold all milk for twenty-four hours, giving the baby a much reduced amount of plain barley water during this time. If at the end of the twenty-four hours the vomiting has ceased and the stools have become less frequent and more normal, the return to the former food should be made very gradually; in all cases so gradually that the child does not begin to take the full strength food for at least six or seven days after the cessation of the symptoms.

When gas and colic are frequent, milk sugar should be used instead of common sugar (in the same amount), or, if the condition continues, sugar must be withheld for a time altogether. If colic continues, after the milk is diluted and the sugar reduced, use barley water (Vol. IV, p. 263) in the milk instead of the boiled water, and peptonize the milk (Vol. IV, p. 264). If the baby's appetite is poor, but he seems otherwise well, increase the intervals between feedings by an hour or two. If the baby is stricken with fever or acute disease of any kind, as measles, a bad cough, etc., dilute the food by removing one-third to one-half the milk from each bottle just before feeding, and replace it with boiled water.

The top-milk from two quarts of milk set in sep-

Feeding of Infants from the Bottle

arate one-quart bottles will be required after the early months.

Food, in Addition to Milk, Allowed the First Year.—At about the twelfth month the baby should receive plain milk mixtures instead of the top-milk heretofore used in making up the food. At first the milk may be plain milk from a shaken bottle, five ounces; barley water (Vol. IV, p. 263), three ounces. Gradually the amount of milk may be increased and the amount of barley water decreased, until the child is taking seven or eight ounces of milk and two ounces of barley water; and later, an undiluted milk. This should be at about fourteen months.

The barley water is prepared by itself and added to the milk, in place of the boiled water which has been previously used in making up the twenty-four-hour mixtures. Barley water affords some nourishment, makes the milk more digestible, and may be used in place of the boiled water to advantage in many cases at the age of three or four months, if there is trouble in digestion and curds in the movements. Usually it is not used as a diluent to the milk until about the sixth month.

Beef Juice.—The juice squeezed from lightly broiled steak may be given a child at about the eighth or ninth month, or, in cases of anæmia, earlier than this. It is given before the milk feeding, diluted with an equal amount of water. At first a teaspoonful of the extracted juice should be given; increase every

three or four days until at the end of two or three weeks two tablespoonfuls are given.

White of Egg.—The egg should be cooked as follows: a fresh egg is placed in boiling water. The water is allowed to cool with the egg in it. At the end of ten minutes the white of the egg is softly coagulated. It may be used in place of beef juice, if the latter does not agree, and may be begun at the sixth month and given once daily; at first, one-half of the white of one egg; at the end of a week, the whole white of one egg.

Orange Juice.—This is useful in aiding the action of the bowels and in counteracting the influence of cooked milk, which frequently has a tendency to produce constipation and may, if continued for too long periods, cause scurvy. The orange juice should be freshly squeezed from the orange and strained. At first, one teaspoonful may be given one hour before the feeding. Increase the amount gradually till four teaspoonfuls are given at one time. This may be begun at about the tenth month.

Water.—An infant should have pure, cool water from the time of its birth, whether fed from the breast or the bottle. The water, unless undoubtedly pure, should be boiled daily and kept cool in a glass bottle. During the first year, water is given several times daily from a spoon, cup, or nursing bottle, between the feedings. In the second year from one to three ounces are often taken at a time between meals.

Feeding of Infants from the Bottle

Diet from the Twelfth to the Fifteenth Month.—

At twelve or thirteen months all normal children should be weaned from the bottle and made to take fluid nourishment from a cup or spoon; though up to the eighteenth month a child as a matter of convenience may have the ten-o'clock feeding from the bottle. The importance of this is often overlooked; but a child who is allowed to continue the bottle to two years suffers from the lack of solid food, and being wedded to the bottle will take little else. Many children are weak and pale purely from too long a continuance of bottle feeding.

Five meals should be given daily: at 6.30 and 10 A.M. and at 2, 6, and 10 P.M. The food for the twenty-four hours should be prepared at one time, and during hot weather, in the case of delicate children, the milk may be heated, as described before. During the latter part of this period, at the third meal, three to four teaspoonfuls of beef juice, or four to six ounces of beef, mutton, or chicken broth, or a soft-boiled egg, with a small piece of toast, may be given, in addition to half of the usual quantity of milk.

The juice of some fresh fruit should be, during these months, a part of the child's diet; that from sweet oranges or peaches is best, and should be given one hour before the milk.

Diet from the Fifteenth to the Twentieth Month.—

The feedings at this time should be as follows:

At 6.30 A.M., ten to twelve ounces of warm, plain milk from a cup.

At 10 A.M., one to two tablespoonfuls of a cereal, such as oatmeal, hominy, farina, arrowroot, or barley. The oatmeal and hominy should be cooked three hours and strained. This may be given with milk or thin cream and salt. Give him also six to eight ounces of plain milk from the cup.

At 2 P.M., four to six ounces of beef, mutton, or chicken broth; one soft-boiled or poached egg; rice which has been cooked four hours, or one to two tablespoonfuls of scraped beef or mutton. For dessert one to two tablespoonfuls of the soft part of stewed prunes, or of baked apple or apple sauce.

At 6 P.M., eight to ten ounces of milk and one of the cereals.

At 10 P.M., ten to twelve ounces of milk.

As soon as the baby begins to sleep past the time for the 10 P.M. feeding, this should be omitted.

Diet from the Twentieth to the Twenty-fourth Month.—6.30 A.M., ten to twelve ounces of plain milk.

9 A.M., the juice of an orange.

10 A.M., one of the cereals, well cooked, but not strained. Six to eight ounces of plain milk. A piece of bread, at least two days old.

2 P.M., either the egg or the scraped meat, one tablespoonful; six ounces of broth, or two to four ounces of beef juice, and fruit as advised in the diet for the preceding months (p. 134). Water, but no milk.

Feeding of Infants from the Bottle

6 P.M., grannum or strained barley, in plain milk, ten to twelve ounces.

10 P.M., ten to twelve ounces of plain milk.

Diet from the Second to the Third Year.—7 A.M., cereal, bread and butter or toast or graham crackers. One glass of warm milk. Soft-boiled or poached egg every other day.

9 A.M., the juice of an orange.

10 A.M., a glass of warm milk or a cup of broth. A slice of stale bread or toast or graham crackers.

2 P.M., a cup of broth, if not given at the 10 o'clock meal. Scraped meat—steak, chop, chicken, beef, or lamb. Vegetables—any one of the following: potato, baked, mashed, boiled; boiled rice or macaroni, cooked with milk; green peas, spinach, string beans, or celery, cooked and mashed. Bread and butter. Dessert: rice pudding, junket, custard, stewed prunes, baked apple, or apple sauce.

6 P.M., cereal and milk, or milk toast, or bread and milk. Ten to fourteen ounces of milk may be taken at this meal.

Diet from the Third to the Sixth Year—Breakfast (7 to 8 A.M.).—Cereals, as oatmeal, hominy, cornmeal, cracked wheat, macaroni, and rice, well cooked and served with cream and sugar. Eggs in some form, except fried. Bread spread with little butter. Toast or graham crackers. One to two glasses of milk. *Forbid* hot bread, hot rolls or biscuit, and griddle cakes of any sort, tea and coffee.

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Dinner (12 to 1 P.M.).—Broths and soups. Meats—preferably steak, chops, rare beef or lamb, and chicken. Fresh fish, broiled, boiled, or baked. *Forbid* ham, sausage, or pork of any kind. Also corned beef, game, duck, liver, stews, rich gravies, dressings for roast meat, salt and smoked fish, and fish balls. Vegetables—potato once daily with cream or beef juice, spinach, asparagus, green peas, string beans, stewed celery, squash, and new beets. *Forbid* cucumbers, green corn, cabbage, cauliflower, baked beans, turnips, old beets and carrots, raw celery, onions, fried potatoes, eggplant, and tomatoes. Dessert: baked apple, stewed prunes, oranges, rice, sago, tapioca and bread puddings without raisins, soft custard and junket, and ice cream occasionally. *Forbid* bananas, raw apples, cherries, berries of all kinds, and pineapples. Stewed pears and peaches, and ripe grapes, if seeds are removed, may be allowed. *Forbid* tea and coffee.

Supper (6 P.M.).—Cereal, or bread and crackers, and twelve ounces of milk.

Give plenty of water between meals. *Forbid* candy, nuts, cake, pies, tarts, and pastries, tea and coffee, at all times, and eating of any sort between meals, a most common and harmful habit. Enforce regularity at meals, taking plenty of time and slow eating of food. To avoid peculiar tastes as regards food, require that simple food be eaten, even if at first distasteful, and allow the food which is desired only after the child has eaten the distasteful article.

Feeding of Infants from the Bottle

Condensed Milk.—Condensed milk is an improper food for continuous feeding of babies. When diluted, as it must be, it contains much too little fat and also too small an amount of the proteid matters which are the flesh-makers. The amount of sugar varies; in the fresh condensed milk there is five times the quantity which is found in the canned milks. Babies often gain in weight for a time, but are subject to scurvy, rickets, digestive troubles, and poor nutrition, if the condensed milk is fed for any length of time, while such infants are prone to contagious diseases and to ruptures. Therefore, for continuous feeding condensed milk is to be condemned unqualifiedly. On the other hand, if the quality of fresh cow's milk is uncertain, or if cow's milk does not agree, or if a journey of a few days is to be taken, condensed milk is an excellent substitute for a proper, fresh, cow's milk, used for but a short time. The directions on the cans usually call for too great dilution: thus, for a baby of one month, dilute one part with thirteen of barley water (Vol. IV, p. 263); for a two-months baby, dilute with eleven parts of barley water; at three months, with ten parts of barley water; at four to six months, with eight parts of barley water; and for older children, dilute one part of condensed milk with six parts of barley water.

Patent or Proprietary Foods for Babies.—Such of these foods as contain starch, or starch which has been partially digested, are not suitable for feeding in the early months of infant life; used injudiciously, they

have been the cause of more disease among babies than perhaps any other one thing except impure milk. They are not essential, and should be avoided unless recommended by a physician. The baby's digestive apparatus is not sufficiently developed in the early months to digest starch, and in the later months strained barley and oatmeal gruels take the place of the infant foods. If the starch does not agree with the baby in the form of barley water, it can be predigested by the mother (Vol. IV, p. 264) at less expense than by buying such in a patent food. Some of the patent foods are unfit for any baby, and all used unwisely are bad. Scurvy, rickets, and many forms of malnutrition and wasting disease result from the use of these foods.

Urging or bribing children to eat, or amusing them while at meals, are practices to be avoided as both useless and harmful. Such methods will not improve a poor appetite, and will inevitably encourage the tendency to play with the food. If the child eats poorly or will take only certain favorite kinds of foods, no amount of coaxing, story-telling, or even force will be of any use. If, when the proper food is placed before the child, he will not take it or complainingly dallies with it, remove it at once, give him nothing between meals, and repeat the same procedure at subsequent meals. Hunger will quietly and forcibly accomplish what cajoling and talk never will, and the child will soon come to recognize the proper times and sorts of foods as the only ones.

CHAPTER V

Diseases of Children

*Common Disorders of Infants—Fever—Enlarged Glands—Rickets
—Holding the Breath—St. Vitus's Dance—Spinal Diseases
—Bowlegs and Knock-knees.*

THE larger number of diseases of children are common to adults as well, and may be found in other parts of the book by consulting the index. Special mention has been made of any peculiarities of these diseases which may occur in children.

INFLAMMATION OF THE BREASTS IN THE NEWBORN.—This is not uncommon. The breasts of either girl or boy babies become swollen and tender, and a few drops of thin milk may exude from them. Ordinarily the child's temperature is not above normal, nor is the appetite disturbed, and these cases subside without causing any trouble.

The breasts should be gently and thoroughly washed with soap and warm water, and then covered with a few layers of cheese cloth, which has been wet in a warm solution of boric acid (a teaspoonful in half a pint of water), and then with oil silk and a flannel band about the chest, with shoulder straps to keep it in place. A fresh, wet application should be applied daily.

Rarely abscess of the breast results with increasing inflammation and redness, formation of "matter" (pus) and fever, loss of appetite, and general disturbance. Such a case of course must be referred to the surgeon at the earliest moment for incision.

RETENTION AND PAINFUL PASSAGE OF URINE.—The baby may pass no urine for twenty-four hours after it is born, and yet there may be no cause for worry. If no urine is passed in the first twelve hours, it is well to put the baby in a warm bath, and if this does not lead to a passage of urine a doctor should be consulted, as there may be some deformity or obstruction. Very rarely there is no opening for escape of excrement from the bowels, and this is first brought to the attention by failure of the child to have a bowel movement. A surgeon must be summoned at once to remedy this condition. No urine is passed for many hours after a bad attack of colic in some cases, but this condition may be relieved by the warm bath.

Pain during the passage of urine may be observed when the urine is too concentrated and stains the diaper with a reddish or yellowish substance. Giving the baby an abundance of water will relieve this condition.

SMALL OPENING IN THE FORESKIN FOR PASSAGE OF URINE.—This is seen in the newborn boy baby as a natural condition. The opening is not only small as a pinhole, but the foreskin cannot

Bleeding of the Cord

be withdrawn so as to expose the head of the penis. Naturally, this state changes as the child grows, but if it does not, and the foreskin remains attached to the parts beneath and cannot be moved freely over the penis, and if the opening for the passage of urine is very small, several bad results are apt to follow. The end of the penis is likely to become sore, red, and swollen, and the passage of urine painful. Some discharge may occur. The irritation leads to rubbing of the parts, and the bad habit of Masturbation often thus begins (see Vol. II, p. 193). Bed-wetting is a common consequence of the irritation. Prolapse of the bowel or rupture may be caused by straining to pass water. Various nervous disorders owe their beginning not infrequently to a narrow foreskin: such as spasms, St. Vitus's dance, and general ill health and nervousness.

Treatment.—This consists in either circumcision, that is, in cutting off circularly a portion of the end of the foreskin; or simply in stretching the opening and loosening up the attachments of the foreskin. Both operations are done by the surgeon under ether. Parents should consult a physician when there is any suggestion of trouble such as we have described.

BLEEDING OF THE CORD AND SORENESS OF THE NAVEL IN THE NEWBORN.—Bleeding of the cord occurring soon after birth must be stopped immediately by tying a soft string tightly about it as far from the belly as the string will get without slipping off. Slight oozing after the cord has

dropped off is usually of no consequence. Sometimes the cord will become soft and offensive, and when it comes away will leave a large sore behind it. There may be a little pea-shaped swelling in the sore which discharges "matter."

In the absence of a physician the sore should be washed three times daily with boric-acid solution (one teaspoonful to half a pint of warm water) and clean absorbent cotton, and then dusted with dry boric acid and covered with clean gauze or soft cotton, when it will usually heal.

PROLAPSE OF THE BOWEL.—This condition is brought about by great or constant straining caused by diarrhea, constipation, a narrow foreskin with difficult urination, worms, whooping cough, overeating, with too frequent large movements of the bowels, etc. There is to be seen a protrusion of the bowel from one-half inch to several inches long. Ordinarily it presents the appearance of a dark-red or purplish, puckered ring at the point of opening of the bowel which goes back or can be pushed back into place. It reappears, however, whenever there is much straining, as during a passage from the bowels. There is generally little pain connected with the trouble, unless the protrusion is large, when—if it remains out for a considerable time—it becomes very painful, inflamed, and may ultimately die and cause the death of the patient.

Treatment.—This consists in removing the causes if possible. In many cases keeping the fæces soft (see

Wasting

Constipation) and refusing the child all food between meals, with the use of cold sponging, may bring about a cure. The first thing to do is lay the child flat on his face, cleanse the protrusion with warm water, grease it with vaseline and push it back. The injection of a little ice water into the bowel (a cupful three times daily) will have a most beneficial effect.

To prevent a return of the trouble the child should be required to have a movement while lying on its back on a diaper or bedpan, or by employing a board, having a hole only three inches in diameter, which is placed over a chamber vessel for the child to sit upon when the bowels move. A baby must not be allowed to sit upon a vessel more than five minutes at a time; there is no more pernicious habit for causing prolapse of the bowels than a long session at this occupation. Special apparatus and operations are necessary to cure chronic or large protrusions of the bowel.

WASTING (*Marasmus*).—This is a condition of infants seen more often during the first year, and is due to various causes. More often it occurs in bottle-fed infants who receive improper food, as undiluted milk, patent foods, cereals, or even vegetables, meat or bread, during the first months of life. The child is starved because it cannot digest such food. There is rapid loss of weight, so that the baby of several months may weigh less than at birth. The skin is sallow, wrinkled, and hangs in folds; the eyes are sunken, and the lips thin and pale—the patient looks

like a little old man. There are sore patches about the buttocks and inner surface of the thighs. The appetite is often voracious. The tongue is heavily coated and dry. Colic is frequent, and the passages are composed of curds or little lumps covered with greenish slime. Sometimes diarrhea and vomiting are present. The baby cries a great deal or dozes a great deal. It often sucks its clawlike hands until they are raw. Rolling and squinting of the eyes and spasms are common in bad cases. The temperature is generally below normal. Milder forms of wasting are seen in breast-fed infants, when the milk is too poor and insufficient to nourish the child, or too rich to be digested. Indigestion and lack of cleanliness in the care of the bottles and nipples also favor marasmus. It is often seen in babies born with syphilis, but in them there are signs of inherited syphilis, as continual snuffles, hoarse cry, moist patches about the mouth and the rectum. Cracks about the mouth and a flattened bridge of the nose are also common to this condition. Tuberculosis may likewise cause wasting in infants, but in this disease there is a temperature of 100° to 101° F. or more, and cough.

Treatment.—It is essential to discover the cause and this may be done with certainty only by the physician. The cause may generally be removed and remedied by proper feeding, such as is advised in the chapter on infant feeding. In these cases a modified milk mixture for a baby a week or two old is often prefer-

Fever

able when beginning treatment, peptonizing the mixture as well, as directed in the appendix. The use of beef juice, as recommended under feeding of infants, is also advisable. Rubbing sweet oil on the body, after sponging with warm water night and morning, will be found beneficial.

SORENESS, SWELLING, AND PAIN IN THE LEGS; GROWING PAINS.—When infants cry out if they are moved, it is suggestive of scurvy or influenza. Older children who suffer from pains in the limbs, which are often called through ignorance “growing pains,” are victims of muscular or acute rheumatism in many cases.

FEVER.—Fever is only a symptom of many diseases, but until it is known to what it is due the same general treatment may be pursued in all cases. The first thing to do is to take the temperature with a thermometer, as described in the appendix. This is the only way to be sure of either the presence or degree of fever; no other signs are conclusive. A temperature of less than 101° F. might be called a slight fever; between that point and 103° , a moderate fever; and over 103° , a considerable fever; over 104° , high fever. High fevers are much more common in children, and are not of so serious import as in adults, unless continued. A temperature of a hundred or over always means some sort of a physical disorder; no single test is so reliable in determining whether a child is sick or no.

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Fevers lasting for a few days are not so harmful as commonly fancied, unless the temperature is high. Fever is nature's method of combating the cause in most cases, and moderate fever, unless it continues for many days, need not cause anxiety, so far as the increased temperature itself is concerned. High fever—especially in children—should be reduced, since headache, delirium, and, in infants, convulsions are not uncommon. A child with fever should be immediately isolated in a room by himself, and other children should be kept away until it is known that the disease is not contagious; as the eruptive diseases of childhood, tonsillitis, *grippe*, and diphtheria are often first made apparent through fever. When fever is high, cold applications should be kept on the head. This is best secured by the rubber cap made to contain cracked ice, but if this cannot be obtained, a single thickness of soft cotton wrung out of ice water should be placed on the forehead and frequently moistened with ice water as it evaporates. The cloth or ice cap ought to be continued as long as the fever remains high. Cold water may be applied by sponging the entire surface of the body, while a hot-water bottle is kept at the feet. The higher the fever the cooler the water should be. Ordinarily water at about 70° F. may be used. The sponging is continued for five or ten minutes, and the surface is then thoroughly dried, and the patient covered moderately. Heavy covering is always bad in fevers. Sponging may be repeated every two

Fever

hours if necessary, but should not be employed unless in a warm room—68° or over. It is not necessary to reduce the temperature below 102° in most cases. The application of a cold pack, when there is fever with restlessness and sleeplessness, is frequently very useful in place of sponging. A sheet wrung out of cold water is spread upon a rubber sheet or blanket on the bed. Upon this is placed a blanket. A binder wide enough to reach from the armpits to the hips of the child is wrung out of water at a temperature of 90° and wrapped around the child, who is then at once wrapped in the blanket. Every fifteen minutes the binder may be removed, and redipped, the water being reduced gradually in temperature. Never reduce it below 70°. A hot-water bottle must be kept at the feet during the entire time the pack is used. Severe cough is no argument against using this pack. If the child sleeps in the pack, do not disturb him for an hour each time. The diet must be liquid in most cases; infants on milk should have the mixture diluted a third to a half with water. Milk, broths, albumen water, and thin cereals constitute the best diet, as a rule (Vol. IV, p. 261). An abundance of cool water may be allowed in fevers, but a little at a time and frequently, is the rule. Rest in bed is imperative. Moving the bowels is also good practice in these cases. Castor oil or calomel are commonly used, or other suitable cathartic (see p. 238). If vomiting is present avoid giving any food for twelve to twenty-four hours.

ENLARGED GLANDS; SCROFULA.—Glands are a natural part of the structure of the body, but are, however, not usually perceptible, unless they become enlarged through inflammation. This inflammation is simply an extension of inflammation from other parts, as glands are a part of a system of vessels (lymphatic system) which drain the tissues all over the body, and empty finally into the general blood stream. The glands act figuratively as traps in a drainage system, and catch the germs (or poisons which they produce) and so protect the whole body from invasion, although the glands may themselves become invaded. Germs gain entrance to glands through wounds, sores, abrasions, and inflammation in various parts of the body. Enlarged glands are commoner in the neck than elsewhere, because inflammation about the throat and mouth is so frequent. Enlarged glands are seen and felt as movable lumps under the skin—more or less tender. In the neck they may be found below or behind the jaw, along the sides, and below the scalp at the back of the neck. Enlarged glands in the armpits arise from inflammation in the hands, arms, or chest; enlarged glands in the groins (where the upper and inner part of the thighs join the body) occur from inflammation in any part of the foot or leg and external sexual organs. In the neck, enlarged glands arise from inflammation of the tonsils (at the angle of the jaw and upper part of the sides of the neck), from sore mouth and tongue (enlarged glands

Enlarged Glands

beneath the jaw), from abscess of the ear (enlarged glands below and behind the ear), from eczema of the scalp (enlarged glands at the back of the neck). Sore throat from any cause, particularly tonsilitis and that common to many of the germ diseases, including measles, German measles, scarlatina, diphtheria, etc., adenoids (Vol. II, p. 61); decayed and loose teeth, cracked lips, and sore tongue and mouth are frequent sources of enlarged glands of the neck. Enlarged glands of the neck are more often seen in children under ten, and the most serious and important form is that caused by the entrance of the germ of consumption or tuberculosis. This germ may enter the healthy gland, but more often attacks the gland already enlarged and inflamed from the causes just enumerated. The gland attacked by the germ of tuberculosis is called a tuberculous or scrofulous gland, or the disease is spoken of as scrofula—an antiquated term. Tuberculous glands develop very slowly; one or more lumps appear in the neck; they are not very tender, but persist and tend to gradually increase in size and number, and finally, after weeks or months, often become red and sore, soften and form abscesses. The enlarged glands which are not tuberculous usually vanish spontaneously after a time. These are exceedingly common in children, and differ from the tuberculous glands in that they arise suddenly—usually after a sore throat—and although they may be quite tender at first they rarely go on to abscess, but slowly disappear. If they do form

abscess it happens in a short time after their appearance. But tuberculous glands after persisting for a long time may likewise disappear without further trouble.

Treatment.—The causes of enlarged glands must be first removed, as enlarged tonsils or adenoids, decayed teeth, sore throat, mouth, or tongue, and disease of the ear. This of course necessitates the services of a physician both to discover and remedy the cause. In many cases it will be impossible in the beginning to determine whether the glands are tuberculous or not, but time and treatment will disclose their true nature. Outdoor life in the country, good food, with an abundance of butter and cream will favor recovery in any case. The compound iodine ointment may be rubbed over the enlarged glands night and morning, unless they are very sore. Enlarged glands which persist and grow in size and number, or which soften and form abscess, must be treated by the surgeon in most instances.

RICKETS.—Rickets is characterized by impairment of the general health, and by softening and distortion of the bones.

It is a disease which affects babies between the age of six months and three years. The general causes are improper food or the absence of a suitable amount of fresh cow's milk. It is largely a disease of the poor living in cities. Italians and negroes are the chief sufferers in the United States. In many foreign cities

Rickets

a large proportion of poor children have rickets. Breast-fed infants are not so likely to develop rickets, unless they are nursed over nine months, or the mother becomes pregnant again while nursing. Feeding the patent baby foods or condensed milk is a frequent cause of rickets.

Symptoms.—Restlessness and sweating of the head with disposition to throw off the bedclothes at night, are among the earliest symptoms. Slight fever (100° to 101° F.), soreness of the body, so that the baby cries when moved, distention of the belly, and soft, flabby flesh, often without any loss of weight, are frequently present. Bowlegs, pigeon breast, and lateral curvature of the spine are seen later, after the child is walking. The two most characteristic changes in the bones are the little lumps which appear on the ribs (known as the rachitic “rosary”) on the front of the chest, forming a row running downward and outward each side of the breast bone, and the enlargement of the bones of the wrists. The head of the child with rickets often looks large, and is either square with projecting forehead and flat sides and top, or is long with a flat top. The soft spot (fontanelle), naturally felt in the top of the baby’s head, and which should disappear at fourteen to eighteen months, remains open in the rickety child till the third or fourth year. The teeth are late in coming, are small, and decay easily. The disease is not of itself dangerous to life, but children with rickets are very susceptible to colds and

coughs, to diarrhea and vomiting, to "holding the breath," difficult breathing, convulsions, and other troubles which may cause death. The deformities in the bones are permanent. Children are puny and sometimes dwarfed, and in women the deformity of the bones of the hips—produced by rickets in childhood—occasionally renders the birth of a child difficult, if not impossible.

Treatment.—The principal object in treatment is proper feeding with modified cow's milk and beef juice for infants, as recommended under infant feeding; and for older children, as directed in the same chapter (p. 132). Babies should stay out of doors in a carriage as much as possible, and be prevented from standing or walking by applying to the legs splints which project below the feet. Sponging with warm water twice daily, and then rubbing the whole body with warm sweet oil are beneficial. One-half teaspoonful of cod-liver oil with six drops of elixir of phosphorus may be given to advantage three times a day, but treatment should only be undertaken with a physician's advice, unless this is impossible.

SPASM OF THE LARYNX; "HOLDING THE BREATH."—This rather rare nervous disorder often occurs in children of six months to three years with rickets. At other times the cause cannot be discovered. The attacks are more apt to come on if the child is scolded or stopped from doing something, after fright or crying; also after swallowing or exposure to

Spasm of the Larynx

draughts. The condition is due to sudden spasm of the muscles of the throat so that the air passage is temporarily closed. When an attack comes on the child suddenly stops breathing, and struggles to regain its breath, turns blue, and sometimes almost loses consciousness. Just when suffocation seems imminent, the breath is drawn in—with a crowing sound in many cases—and the attack is over with the passing away of the spasm in the throat. Similar attacks may occur many times during the day. There is scarcely any danger, as recovery almost always takes place, but rarely a child may have convulsions. Death from suffocation has been known to have happened. This disorder is more frequent in England than the United States. It is not associated with either cough or hoarseness.

Treatment.—During an attack, sprinkle cold water in the child's face. Daily cold sponging of the body, part by part, drying each part in turn, may benefit, unless it increases the spasm through fright. During the attack chloroforming may be necessary. If so, a few drops are sprinkled on a handkerchief and placed close to the nose and mouth of the patient, and removed at once, when breathing is relieved or the convulsion ceases. Chloroform is a dangerous agent. Rickets, if present, must be treated and constipation prevented; inflamed gums may require lancing by the physician. Out-of-door airings must be increased.

CHOREA; ST. VITUS'S DANCE.—This is a nervous disorder affecting chiefly children between five and fifteen, but does occur at various ages, and occasionally attacks pregnant women. It is twice as frequent in girls as in boys.

Causes.—Grief, fright, a severe scolding, overwork at school, eye-strain, anæmia or malnutrition are among the exciting causes. A strong tendency to the disease exists in certain families. There is a close relationship between chorea and rheumatism which is not entirely understood. Acute rheumatism sometimes begins with chorea, and at other times chorea occurs during the course of acute rheumatism or follows it, at longer or shorter intervals. The great danger in chorea, as in rheumatic fever, lies in the probability of chronic valvular disease of the heart resulting, which has been found in fifty per cent of patients who had suffered from chorea.

Symptoms.—Chorea generally begins gradually. The child becomes fidgety and cannot sit still; cries easily, and often has night terrors, pains in the limbs, stomach ache and other digestive disturbances. The patient is apt to be misjudged as being willful, and after a time appears awkward and frequently trips and falls in walking, upsets or drops things at the table. Then the characteristic feature of chorea begins in twitching of the muscles of the hands, arms, and face, and—to less extent—of the legs. Sometimes only one side of the body is affected. The face is wrinkled

Chorea

and contorted with grimaces, and the arms are jerked about in the most irregular fashion, which cannot be prevented by the patient. The movements may be almost continuous, or with long intervals of quiet, and are much worse when the patient is nervous or tired. In severe cases the patient is unable to walk, talk, feed, or undress himself without assistance, so violent are the movements. They cease in sleep. The disease tends to run a course of eight to ten weeks, with recovery if under vigorous treatment. Chronic heart disease may persist. A return of the disease is not uncommon—more often in the spring. A varying degree of mental weakness accompanies chorea, from a state of deficient memory, fretfulness and irritability, and incapacity for brain work to a condition of temporary insanity in rare cases.

Treatment.—The child must be taken away from school to avoid all mental application as well as ridicule and excitement, and is better if kept from everyone but the nurse. It should not be subjected to punishment for the movements or grimaces or dropping things. Rest in bed with playthings is of great service, except in mild cases. The drug treatment consists chiefly in the use of arsenic in gradually increasing doses until the poisonous point is almost reached. This and other remedies, as massage, electricity, and baths, must be carried out under the direction of a physician.

POTT'S DISEASE; ANGULAR CURVATURE OF THE SPINE.—This is a disease caused by softening and destruction of a portion of the vertebræ (bones of the spine) due to the germs of tuberculosis. It is a tuberculosis of bone. It begins more frequently in children between the ages of three and five, although often at other periods. If it goes on without early treatment it causes death eventually in about one-fifth of all cases, or leads to deformity of the spine or humpback, and many other conditions, as abscesses in the groins and back, paralysis, etc. If treatment, on the other hand, is begun at the onset before there is any (or but slight) deformity, the disease is frequently cured completely. It is of the chiefest importance then for parents to recognize spinal disease at the earliest moment.

The seat of the disease is more often in the upper two-thirds of the back. The exciting cause in many instances is a blow or fall received a long time before the spinal trouble became evident.

Symptoms.—The disease begins slowly. Before any definite symptoms present themselves the child appears fretful, lies on the floor, and is loath to stand or play, and often has a cough or pain in the abdomen. The chief symptoms are pain, stiffness of the back, awkwardness in moving, weakness, and deformity. Pain is not felt in the back usually, except when jarred, although at night the child often cries out in its sleep, owing to unconscious movements. Neither is tender-

Pott's Disease

ness on pressing the spine common, but pain is felt more often in the belly, as stomach ache and colic. Stiffness of the back is a very important sign. The child does not bend its back freely, but carries itself stiffly, and when it stoops to pick up anything, squats down by bending the legs at the knees and hips. Weakness is shown by the child's dislike to stand or walk. It tries to hold on to something for support, totters about on its toes, and falls frequently. Deformity is usually the first sign which calls attention to the real nature of the disease, unless the parents are awake to the possibility of the trouble, and this is unfortunate because it is essential that a physician should treat the child at the earliest possible moment. The deformity is seen as a knucklelike projection in some part of the back, and is made much more noticeable by bending the back. Occasionally there is a curvature of the back caused by rickets, but in this case the spine is bowed outward through a great part of its length, and there are other signs of rickets, as enlargement of the wrists and beadlike swellings on the ribs. The temperature in Pott's disease or tuberculosis of the spine, we have been describing, is apt to range about $99\frac{1}{2}^{\circ}$ to 100° F. If the spine in the neck is diseased, the shoulders are apt to be held high and there is often a chronic stiff neck, while if in the lower part of the back the child is apt to lean forward with the hands resting on the thigh.

Treatment.—The treatment consists in absolute rest in bed and the application of a variety of apparatus

according to circumstances. A physician's attention should be called to the case at the slightest suspicion of trouble suggesting Pott's disease.

LATERAL CURVATURE.—This disorder differs entirely from the last described. Lateral curvature of the spine is a deformity of the body due to a permanent bending or bowing of the spine to one side, so that instead of being straight it assumes somewhat the shape of the letter S. Not only is the spine bent to one side, but owing to certain causes it is turned to some extent on its axis. In the beginning, this distortion of the spinal column is not usually brought about by disease of the spine itself, although sometimes in children with rickets the softer bone favors the deformity, but arises from causes which tend to pull, more or less constantly, the spine out of line and, occurring at an early age when the spinal structures are very pliable, permanent distortion results with gradual changes in structure of the bones of the spine (vertebræ) in consequence. It is very important, then, that this condition be discovered before actual structural changes occur, because the disease may be overcome, and incurable and lasting deformity can be prevented. Among the causes are all sorts of circumstances leading to faulty positions of the body, as improper arrangement of school desks; carrying heavy weights constantly in one hand or one arm, as children carrying babies; certain occupations; effects of clothing; diseases, as faulty sight requiring bending of the head

Lateral Curvature

and body to see; paralysis of muscles on one side of the body; loss of one arm; rapid growth; rickets, etc. Lateral curvature is much more frequent in girls than boys, but may be seen in robust boys who practice special exercises. While the deformity often begins in young children it does not commonly become apparent until a later period (from eight to fifteen years of age), when growth is rapid. The bowing in the upper part of the spine is usually to the right, while the left shoulder is lowered and the left hip is raised as compared with these points on the right side of the body. The condition is best observed by marking the line along the bony projections of the spine down the back. There are frequently no unpleasant symptoms. Sometimes, however, there are fatigue from slight causes, general irritability, and pain on the left side, if the bowing of the spine is toward the right. More often no pain is produced. Occasionally the disease may closely resemble angular curvature, described above, but fever, pain on movements, and stiffness of the back are absent.

Treatment.—In children this deformity of the spine may sometimes be corrected by properly selected exercises or by apparatus. Special knowledge and skill are required for this purpose, so that the physician should be informed as soon as there is any evidence of lateral deformity discovered, and parents should, therefore, be on the lookout for the existence of it.

HIP-JOINT DISEASE; HIP DISEASE.—The disease of children commonly called hip disease is usually an inflammation of the hip joint caused by the germ of tuberculosis or consumption. It begins slowly, and sometimes may apparently be traced to an injury, as a fall or blow. The first symptom which attracts attention to the disease in the child is usually a slight limp and stiffness of the affected limb in the morning, which may pass off after a while when the child is playing. Sometimes there may be periods of weeks when this disappears only to return in a worse form. More often, however, it is constantly present and grows worse. Along with the lameness, or a little later, appears pain. But the pain at first is not as a rule in the diseased hip joint, but in the toe, calf of the leg, or knee. This is apt naturally to mislead parents into thinking the trouble is due to the misnamed growing pains, rheumatism, or weakness in the knee, but they must avoid this error. At night the child often cries out in pain. The position in which the child holds the affected leg is often characteristic. The weight is chiefly borne on the sound limb, while the diseased limb is bent slightly at the thigh, and the toes and limb are turned outward. At the same time the crease, naturally present under the buttocks, is less noticeable on the leg of the affected side. If the physician's attention is called to it in the beginning, most every case can be cured by rest in bed, splints, and apparatus of various kinds. If neglected till a late date, abscess about the

Bowleg

joint, years of suffering, permanent crippling and lameness, loss of the limb, or even death may result.

BOWLEG.—Most babies appear to be bow-legged at birth, as they have a tendency to bring the soles of their feet together, causing the legs to bow outward. This condition disappears as the baby grows older, although occasionally a child is born really bow-legged. Bowlegs more often develop, however, between the ages of one and six, and are usually due to rickets (see p. 151). The condition may also be seen in robust, heavy children who have been allowed to walk at too early an age. In bowlegs the lower limbs are bent in most cases outward, so that the knees are widely separated. The bowing may be either of the two bones of the leg, below the knee, or of the thigh bone as well, above the knee. About one person in five is said to be bow-legged, and while the condition causes no physical disability or discomfort, yet it is often a repulsive deformity.

Treatment.—Children having a tendency to bow-legs should not be permitted either to walk or stand at an early age. The avoidance of thick diapers—which prevent the child from holding its thighs together—is important. Massage—that is rubbing the legs and kneading the muscles—and making gentle and continued pressure on the outside of the limbs, so as to bend them inward into a straight line, will correct the deformity in infants, if done persistently several times daily. When bowlegs first develop in

babies, treatment directed against rickets is usually desirable; the child must remain outdoors as much as possible; the diet should be improved; one-half to one teaspoonful of an "emulsion of cod-liver oil with hypophosphites" may be given three times daily, and pure cod-liver oil rubbed all over the body once daily after the bath. If the soles of the shoes are made thicker along the outer borders it will favor correction of bowlegs, when the child begins to walk. In older children, when bowlegs are very pronounced, and the deformity is of long standing, correction can only be secured through the application of apparatus by the surgeon, or through operation, such as cutting loose part of the bones of the thighs and setting them in proper position.

KNOCK-KNEES.—This is a deformity acquired in infancy, owing to rickets—with malformation of the bones of the legs—but may develop in later life, owing to weakness of the ligaments on the inner side of the knee joint. In knock-knee, the knees are in close contact, and the feet held apart. A slight degree of this condition is seen naturally in women. Knock-knee is not recognized by parents so readily as bowlegs. After the child has begun to walk, it may show the trouble by an awkward, waddling gait, and by frequently stumbling and falling, and the deformity may be seen when the child is standing erect or lying with the legs stretched at full length. The deformity does not tend to correct itself, as in the case with bowlegs. The treatment with cod-liver oil and outdoor life, advised

Knock-Knees

for bowlegs, is appropriate for knock-knee in infancy. Also the legs should be well rubbed and kneaded, and straightened by pressing upon the inside of the knee joints with the palm of one hand, while the ankle is grasped with the other. Such treatment should be employed for ten minutes at a time twice each day. If such measures do not correct the deformity, it will be necessary for a physician to apply braces, which will usually cure the condition in children under six. After this age an operation to break or cut the bones above the knee is often required to secure a good result.

Part III

CIRCULATION AND DIGESTION

BY

KENELM WINSLOW

AND

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CHAPTER I

The Heart

Valvular Affections—Causes of Heart Disease—Careful Examinations Necessary—Treatment of Palpitation—Blood Analysis—Anæmia.

HEART DISEASE.—The heart is a hollow muscle which withdraws blood from one set of blood vessels (the veins) and pumps it into another set (the arteries) and thus keeps the blood moving about the body. Within the heart are chambers and valves to prevent the blood from flowing back from the arteries into the heart and from the heart into the veins, as the valves in a pump prevent the water from flowing back into the well when the piston is lowered. In heart disease the muscle is either altered in structure through the influence of poisons—most of which are produced by the germs causing the acute diseases—or the valves of the heart become defective; that is, the valves do not close properly and are leaky, or else they become obstructed. Such defects constitute what is called valvular disease, which is the most common form of chronic disease of the heart. The effect of such a condition is that the heart does not pump sufficient blood into the arteries, because it leaks back into the

Plate X

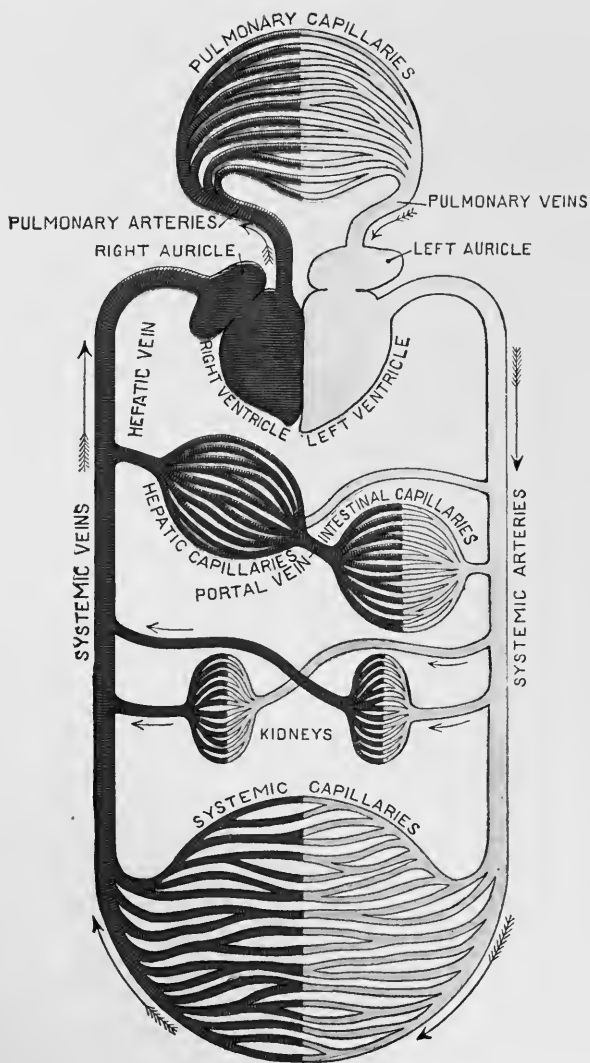
DIAGRAM OF THE CIRCULATION

The **Left Auricle** receives from the lungs the fresh, bright-red blood (indicated in **Light Red**) through the **Pulmonary Veins**. From the left auricle the blood passes into the **Left Ventricle**, and is then distributed through the **Systemic Arteries** to the liver, kidneys, intestines, and other parts of the body, at length reaching the **Systemic Capillaries**.

The **Portal Veins** carry the blood to the liver, where bile is formed and important changes effected in the blood.

Returning from the various organs and the body tissues, by way of the **Hepatic, Intestinal, and other Capillaries**, through the **Systemic Veins**, it carries with it the carbonic acid given off during the waste of tissue, and which imparts to it a dark tint.

This dark-red blood (**Dark-Red Portions in Diagram**) finally reaches the heart again through the **Hepatic Veins** which empty it into the **Right Auricle**. It then passes into the **Right Ventricle**, which pumps it through the **Pulmonary Arteries** into the lungs. Here it is purified by being exposed to the oxygen of the air, and in its new condition is returned through the **Pulmonary Capillaries and Veins** to the left auricle.



veins, or is retarded in its flow into the arteries. But there is a common provision of Nature which frequently prevents such a disturbance, and this consists in enlargement of the heart and increase in its muscular power sufficient to overcome the valvular defect. When this happens, there may be so little disturbance produced by the disease of the valves that the patient may be entirely ignorant of its existence. This effort of Nature is called compensation, and it may be more or less perfect and may last a longer or shorter time. Occasionally a person may live to a good old age with a valvular affection of the heart which has been prevented from giving any trouble by the compensating enlargement. When the enlargement is insufficient, or, when after a time the increase in muscular power caused by the enlarged heart ceases, then disturbances in the circulation appear, and are manifested by symptoms.

Causes.—Among all the acute diseases rheumatic fever is the most frequent source of heart disease. Scarlet fever, tonsilitis, diphtheria, pneumonia, small-pox, erysipelas, blood poisoning, gonorrhea, childbed fever, and some others, are often responsible for disease of the heart—either evident at the time or occurring at a later period. While children may be born with heart defects, rarely is the tendency to heart disease inherited. Habitual use of alcohol, syphilis, and gout favor its occurrence. Repeated mental stress or physical overstrain favor the development of some forms

Heart Disease

of heart disease. Heart disease attacks all ages and both sexes. Valvular disease begins more frequently between eighteen and forty, and is a little more frequent in women. The changes in the blood vessels, through which they become more brittle, lead to disease of the heart in old age.

Symptoms.—Shortness of breath on slight exertion, blueness of the lips, finger tips, face, and ears, and swelling of the feet are among the more common symptoms. Also discomfort and pains and palpitation of the heart, with indigestion, cough, dizziness, and fainting. There may be trifling spitting of blood. Not all these symptoms are present in all cases of heart disease, and any single one of them may be characteristic of some other disorder. In children are usually observed paleness, unnatural inactivity—the child does not run about and play like other children—there are shortness of breath, blue lips, complaint of distress or pain about the heart, and it may be seen or felt beating violently. The digestion is disturbed, the feet may swell, or the child may be unable to lie flat and breathe comfortably.

A careful physical examination of the heart and body, made by a physician, is essential whenever heart disease is suspected. It is impossible to form any correct opinion concerning its existence from the symptoms alone. Pains about the joints in children, with or without fever, should always lead parents to secure medical advice in the light of a possibility of

rheumatism and its common result in leading to damage of the heart. What are improperly called "growing pains" are gouty or rheumatic danger signals. It is impossible to outline any form of treatment, which must vary according to the kind of heart disease and the individual needs. From what has been said of the frequency with which disease of the heart originates in the acute disease, the necessity of patients remaining in bed for a sufficient length of time to save the heart, and the importance of keeping the patient quiet when in bed, and not allowing him to sit up during such diseases, will become evident to the reader.

Avoidance of excitement and of exposure is important after attacks of rheumatism and of the infectious disorders. The diet should be moderate and distention of the stomach should be avoided. Alcohol and tobacco must be forbidden absolutely. A patient suffering from heart disease should never drink large quantities of fluid at one time, or during the day. One-half to two-thirds of a glassful of fluid may be taken at one time. Sudden death from failure of the heart is very rare, and the prevalent fear of such failure is unfounded.

PALPITATION OF THE HEART.—A test of the normal condition of most of our organs is our unconsciousness of their existence. In palpitation of the heart the movements of the heart become uncomfortably perceptible and there is an indescribable discomfort or distress over the heart, or more commonly there

Palpitation of the Heart

is a beating, throbbing, fluttering, or jumping of the heart. At the same time there may be a sensation of "goneness" and weakness in the pit of the stomach, or nausea and pains about the heart.

Causes.—Palpitation is usually due to nervous weakness and occurs more frequently in nervous and anæmic women (p. 174). While in some cases the action of the heart is often rapid and violent, yet in other cases it beats naturally and quietly when the patient imagines it is beating tumultuously. This shows that the condition arises often from unnatural sensitiveness of the patient to the action of the heart; for in true organic disease of the heart muscle, when the action is unusually strong or rapid, the patient is, in most instances, completely unconscious of it. Palpitation is then generally not a symptom of serious heart disease, but is commonly significant of nervous weakness which usually admits of cure, although in some persons the trouble may persist for a long period. Palpitation is not continuous, but there are intervals of freedom from distress. The attacks may last for a few minutes or even for an hour or more. Palpitation is seen more often in women at puberty, during menstrual periods, or during the "change of life," when the nervous system is more sensitive. Fright, excitement, grief, and anxiety may occasion it. In men, excess in alcohol, coffee, and tobacco; and in women, tea, are frequently responsible for palpitation. Indigestion with wind or flatulence is a common

cause. Overwork, nervous exhaustion, hysteria, and sexual excitement favor its occurrence. Palpitation is more apt to appear when the body assumes certain postures, as lying on the left side. Exercise not rarely relieves palpitation. During an attack the increased action of the heart may be seen or felt with the hand on the chest, the face may be red, and the pulse rapid. In other cases—as has been noted—no change can be detected.

Treatment.—The attacks may be relieved by a teaspoonful of spirit of chloroform (not pure chloroform), or a half teaspoonful of Hoffman's anodyne, or a teaspoonful of tincture of valerian, either one in a wine-glass of water. A half teaspoonful of aromatic spirit of ammonia or a little brandy in cold water, may be serviceable also. The brandy must not be used by those accustomed to alcohol. Tea, coffee, tobacco, alcohol, and sexual excitement must be avoided. The employment of regular, moderate exercise, of ten hours' sleep, and of daily tepid or cool baths, with light meals, should be the rule. Other existing disorders which may be responsible for the palpitation, as nervous exhaustion, should receive medical attention. An examination of the heart by a physician is essential to eliminate absolutely the possibility of true organic disease of the heart. Treatment of a tonic nature with iron and arsenic, which can only be prescribed to advantage by the medical man, should generally be continued for a considerable time. The application of a

Quality of the Blood

mustard paper, or cold compress, over the heart during the attacks will sometimes prove of value. The hourly use of sodium bromide, taken in five-grain doses dissolved in water, is one of the most useful remedies in nervous persons, but should not be continued for a longer period than a day at a time.

DEFICIENCY IN QUANTITY OR QUALITY OF THE BLOOD—ANÆMIA.—Blood is a fluid in which float microscopic solid elements—the red and white cells. Anæmia is a condition of the blood in which either the total amount of blood is reduced, or there is a deficiency in the number of red cells, or in the matter which gives to these cells their red color. Until the microscopic examination of blood had reached the development which it has now attained, a person was thought to have anæmia when the face, and more particularly the lips, presented a pale or bloodless color. But examination of the blood shows us that not all persons with even marked paleness have anæmia. This is notably the case with persons living in the tropics (who are not exposed to the sun), in those with nervous exhaustion, and often in patients with beginning consumption. Therefore it is not safe to rely upon color or even symptoms—as in nervous prostration with pallor we have the symptoms common to anæmia—but for accuracy the blood of the pale person must be examined by a competent medical man. Anæmia is ordinarily secondary to some other diseased condition. Among these we have the following: loss

of blood as from injury; from bleeding from the stomach, lungs, piles, or the womb; in conditions with a constant drain from the body, as in nursing mothers; in chronic diarrhea; and with discharging sores and wounds; poisons, as by constant exposure to lead and arsenic, and the poisons of germ diseases, as malaria, syphilis, typhoid fever, tuberculosis, etc.; chronic digestive disorders, or starvation and cancer. Various forms of worms infesting the bowels may produce the most severe forms of anæmia, and among these the minute hook worm has recently been discovered to be responsible for much of the disease in certain localities, as in our new insular possessions in the Philippines and Porto Rico and in many parts of the Southern United States. The "clay eaters" of the South owe their color and condition chiefly to the hook worm. Its recognition and expulsion from the body have now become simple matters to the physician.

It will thus be impressed upon the mind of the reader that it is incumbent upon pale persons not only to have their blood examined but to employ a physician to discover and remedy the cause. There are, however, certain individual cases in which it may not be possible to assign a cause, and there are two general classes of cases in which there is severe anæmia without apparent cause. These two classes include (a) the "green disease" (chlorosis) of young women between the ages of fourteen and seventeen; generally those who have grown up in the city without proper

Quality of the Blood

air, food, and exercise, and who present a peculiar yellowish-green complexion; and (b) the fatal type of anæmia, in which there are waxy pallor and bloodless lips and such great languor and increasing weakness that the patient takes to bed.

Symptoms.—Besides paleness of the skin and mucous membrane of the lip inside of the mouth and pearly bluish whiteness of the whites of the eyes, there is the peculiar greenish-yellow complexion of the anæmia of young women; while in the more grave forms the skin has often a waxen or even yellowish hue, and there may be brown pigmentation about the ankles. Among the more frequent results of anæmia are fluttering of the heart and short breath on slight exertion; languor and fatigue after slight mental or physical work; poor appetite and disturbed digestion, with constipation; headache, dizziness, and fainting, with the appearance of spots before the eyes and blurring of the sight. In the severe cases of anæmia there is excessive weakness. Puffiness of the face and ankles is sometimes seen.

The skill of a physician will be required to rule out such conditions as disease of the heart or kidneys, or nervous exhaustion associated with paleness, in which the symptoms are somewhat similar. The outlook is usually favorable in the anæmias secondary to other diseases, which can be remedied, and also in the form of "green disease" peculiar to young women. The treatment consists in a general way in following an

outdoor life, especially in high altitudes; in eating good, nourishing food, particularly the red meats, milk, eggs, and green vegetables; and in the use of iron in the form of Blaud's pills. Two of the five-grain Blaud's pills may be taken three times daily, after meals. Arsenic is valuable, notably in the more severe cases, but should be taken only under a physician's directions.

CHAPTER II

The Stomach and Bowels

*Indigestion — Jaundice — Biliousness — Dyspepsia — Vomiting —
Diarrhea — Cholera Infantum — Dysentery — Cholera Morbus
— Cholera — Constipation — Worms.*

ACUTE INDIGESTION.—Acute indigestion is really a catarrhal inflammation of the lining mucous membrane of the stomach, with swelling and redness such as is seen in a bad sore throat; sometimes there is also an acute catarrh of the first part of the bowels (see p. 205). This condition is caused by food which is indigestible or has begun to decompose, in which condition it is favorable to the growth of disease germs, particularly in hot weather. The excessive use of alcohol, overeating, fatigue, and violent emotion may also cause it.

Symptoms.—At first there is a feeling of weight, fullness, and discomfort just below the breastbone. Sometimes there is actual pain, but this is usually not violent. The mouth is dry, the tongue is coated, and thirst is usually present. Nausea and vomiting are the most characteristic symptoms, together with tenderness on pressure over the stomach. The food is first expelled, and then mucus and bile. After vomiting has

occurred the patient begins to improve; but the tongue remains coated, the breath is disagreeable, there is an unpleasant taste, and some discomfort in the stomach for several days. Fever is absent or slight in mild cases, but sometimes the temperature rises suddenly to 102° or 103° F., and there are chills, headache, dizziness, and dullness. This condition is spoken of as gastric fever. Formerly, what were in reality mild cases of typhoid fever were called cases of "gastric fever." In typhoid fever the temperature rises slowly during a week, becoming higher each day, instead of suddenly appearing at its highest in the course of one day, as is seen in catarrh of the stomach. The communicable diseases, such as influenza, and the eruptive disorders, such as scarlet fever, frequently come on like indigestion, but in four days a diagnosis will be made without doubt. Mild cases of acute indigestion last only twenty-four hours; severer cases for two or three days. There is always more or less languor. The bowels are commonly constipated, although diarrhea may be present. Cold sores are often troublesome.

Treatment.—It is advisable to empty the stomach and bowels and be rid of the offending contents. One or two teaspoonfuls of castor oil should be given to babies or children, and five grains of calomel, followed in six or eight hours by a tablespoonful of Epsom salts or a Seidlitz powder in a glass of water, are appropriate remedies for adults. If there is much pain and discomfort in the stomach and vomiting does not come on

Jaundice

(before using the cathartic) it is wise to empty the stomach. The patient should drink a pint of tepid water containing a teaspoonful or more of common salt, and then tickle the back of the throat with the finger to cause vomiting.

Children may receive a teaspoonful of sirup of ipecac. Rest of the stomach is the next necessity, that is, fasting; this is very essential. If vomiting persists after the stomach is empty of food, little pieces of cracked ice held in the mouth, or a tablespoonful of ice-cold soda water at frequent intervals, will give relief. No solid food should be eaten for two days. Strained rice or barley gruel may be taken during this time, and on the third day gruels, soups, and a soft egg. Medicine is not otherwise necessary. The cathartic at the onset of the disorder is as essential if there be diarrhea as when there is constipation.

JAUNDICE.—There are many causes of jaundice, but the commonest form, described here, is due to an attack of acute indigestion or catarrh of the stomach and first part of the bowel. As a result of this catarrhal inflammation, the lining mucous membrane of the intestine becomes swollen, and in this way obstructs the opening of the tube (common bile duct), which conveys bile from the liver into the bowels. The opening of this bile duct in the intestine is about three or four inches below the point where the stomach ends and the bowel begins. Not only is the bile duct closed by swelling of the mucous membrane about its

aperture in the bowel, but this opening is often plugged with mucus which is being secreted from the inflamed area. Jaundice is the direct result of this plugging and obstruction of the bile duct, since the bile is prevented from flowing into the bowel, as it naturally should, and backs up into the ducts of the liver until it is re-absorbed into the blood, with the result that the skin and whites of the eyes are tinged from pale yellow to olive or greenish black, and the urine dark brown, while the bowel discharges, being deprived of bile, become light-colored or almost white. Simple catarrhal jaundice occurs more often in young, previously healthy persons, and usually follows an attack of acute indigestion; but it may be caused by exposure to cold, or fright, and it may accompany malaria and other diseases. It is sometimes seen as an epidemic in spring and fall.

Symptoms.—The jaundice or yellow appearance sometimes comes on without any previous warning or discomfort, but generally such symptoms as the following may appear several days, or rarely a week or two, before the jaundice is noticed. There are loss of appetite, nausea, a feeling of heaviness and distress in the region of the stomach some hours after eating, and perhaps discomfort in the right side; there is a bad taste, and the tongue is coated. In severe cases there are headache, pains in the back and limbs, and fever, the temperature rarely rising over 101° F., at the onset. The pulse, however, is usually slower than normal.

Jaundice

Languor, headache, visual disturbances or irritability are often pronounced ; sleepiness and itching of the skin are also frequent, and there may be boils. The bowels are constipated as a rule, and the evacuations are very light-colored, while the urine, in carrying away the bile from the blood, takes on a dark-brown hue, and, when shaken, forms a yellow foam characteristic of the condition. There may be profuse perspiration and the sweat may be yellow.

The suddenness and pronounced character of this form of jaundice serves to distinguish it from the more serious varieties. Thus the chronic and incurable kinds, such as those caused by pressure of the diseased organs, by cancer of the liver, and chronic alcoholism, are apt to be less marked, and to come on slowly with emaciation and other symptoms of ill health; they do not appear rapidly in previously well persons. The jaundice appearing with gallstones is generally preceded by violent attacks of excruciating pain.

There is another form of jaundice, not uncommon in newborn children, which appears about the third or fourth day of life and lasts for about a week or so, and is characterized by some loss of weight, general yellowness, and the passage of dark-colored urine. This is a harmless condition and needs no treatment. There is, however, a rare form of jaundice in the newborn which is accompanied by great emaciation and is often fatal, being due to changes in the structure of the liver.

The doctor must be called in to establish the difference here.

Treatment.—If there is any fever (the temperature above 99° F.), or much weakness and general discomfort, the patient should go to bed. Otherwise he may safely keep about; but the requisite diet is not conducive to work. This should consist at first of skimmed milk, meat broths free from fat, or white of egg beaten up with about six times its bulk of cold water, and given when the froth subsides, flavored with a few drops of lemon juice. Some such nourishment should be given every two hours during the day, with occasionally milk toast, crackers, or a bland cereal like wheat-flour or corn-starch gruel.

The bowels should be moved freely every day with a tablespoonful of Epsom salts dissolved in as little water as possible, and followed immediately by a whole tumblerful of pure water. Instead of Epsom salts, the daily use of Seidlitz powders, citrate of magnesia, Hathorn water, Hunjadi Janos, or Carlsbad salts may be more agreeable; the cathartic should always be taken early in the morning before eating. As the feelings of discomfort from the indigestion disappear and the passages from the bowels regain a natural color, the diet may be extended to lean meat, chicken, fish, cooked vegetables, such as mashed or baked potato, peas, string beans and spinach, and cooked fruits. Much water should be taken throughout the disease, particularly vichy or soda water, if obtainable. Daily injections of

Biliousness

a pint of cold water into the bowel, to be retained as long as possible, are useful. Itching is relieved by bathing the skin with tepid water containing a teaspoonful of baking soda, or half a teaspoonful of carbolic acid in half a pint each of alcohol and hot water, or in a pint of hot water alone. Catarrhal jaundice lasts two weeks in mild cases, four and even twelve in the more severe. If it persists beyond this time it is apt to be not of the catarrhal form, but of some more serious variety indicative of liver disease.

BILIOUSNESS.—This is a vague term describing, not an exact condition of the body, but, in an indefinite way, a group of symptoms. It is probable that there is some acute indigestion, or more or less catarrh of the stomach and first part of the bowel, in many cases, and that poisons (ptomaines), developed by the decomposed food in the stomach and bowels, are absorbed into the liver and derange that organ so that symptoms of indigestion and liver disturbance result. There are loss of appetite, languor, headache or dizziness, and depression of spirits. The tongue is coated and often of a yellowish hue in the center, and there may be a bitter taste. Constipation is the rule. The whites of the eyes are apt to become slightly yellow, and the skin sallow. Sometimes, after several days of such symptoms, a violent headache comes on with nausea and vomiting, and is followed by relief.

Biliousness is more frequent in autumn and spring.

It arises in some persons from eating special articles of food, as eggs, milk, and coffee. Probably the fat in these substances disturbs digestion. In most cases of biliousness we see neither the marked symptoms of bile absorption, as white bowel discharges and pronounced yellowness of jaundice, nor the characteristic signs of acute indigestion with tenderness of the stomach and vomiting; but the condition is like a mild admixture of both these disorders.

Treatment.—The avoidance of certain articles of diet may secure freedom from the trouble. Measures calculated to overcome constipation are useful, such as exercise, especially horseback riding, performing movements for fifteen minutes each morning, in which the body, at first perfectly erect with the hands held directly above the head, is bent from the hips forward till the tips of the fingers touch the floor, and in which the body is swayed at the hips from side to side. Rowing and bicycling are excellent, also massage of the muscles of the belly. An occasional dose of calomel, not oftener than once a week when the symptoms are felt to be approaching, is useful; one grain should be taken hourly for six hours, followed in four hours by a Seidlitz powder or a tablespoonful of Epsom salts in a glass of water.

**DYSPEPSIA OR CHRONIC INDIGESTION;
CHRONIC CATARRH OF THE STOMACH.—**

This is an exceedingly difficult subject to consider in a popular book, for the reason that it is often impos-

Chronic Dyspepsia

sible, even for a physician, to determine, from the symptoms and examination of the patient alone, the exact nature, and, therefore, the appropriate treatment of a disease of the digestive organs. It is frequently essential that the stomach be emptied of its contents after a special or "test" meal has been taken, and the result subjected to chemical examination to discover the exact cause of the disorder. This is the routine method followed by specialists in stomach troubles, and the treatment of such diseases without this aid is mere guesswork. There are, however, certain means which may be employed to relieve distress when it is not possible to secure medical help, and also some remarks to be made concerning the more common causes of dyspepsia which may be of value both in the way of prevention and cure.

General Causes.—The causes of ordinary dyspepsia are numerous. There has usually been rapid eating, or rather eating alone, which usually amounts to the same thing. The abuse of alcohol is a very common cause. Lack of exercise, especially in those accustomed to it, favors dyspepsia. Anæmia, that is, blood poor in quality and to some extent in quantity, leads to indigestion, because our digestion depends upon two functions: first, the proper secretion of digestive juices by the stomach, liver, intestines, and pancreas ("sweet bread"), and second, the movements of the stomach and intestines, whereby the contents are rolled about, mixed with the juices, and gradually pushed along until the nutritive

particles are absorbed and the remainder finally expelled as excrement. Now the digestive juices will not be secreted in abundance unless the organs are well supplied with good blood, and exercise in the open air, above all things, makes good blood. Moreover, both the secretion of digestive juices and the movements of the stomach and intestines are under the control of the nervous system, so that nervous disturbance is one of the most frequent causes of dyspepsia. Overindulgence in tea, coffee, and tobacco deranges the nerves and occasions dyspepsia; an irregular life with late hours, dissipation, or worry and anxiety also contributes to this condition. Again, either lack of occupation or overwork indoors, associated with mental strain or bad air, is a source of the malady. As dyspepsia produces mental depression and anxiety, and as these in turn aggravate dyspepsia, a vicious circle of distressing disorders is the result. Dyspepsia is more common from early adult to middle age, after which time life is taken more calmly, and the stress and strain are generally less. Errors in diet are among the usual causes of indigestion; among such are the use of fried articles of food, pies, hot bread, pancakes, cocktails, and ice water. The habitual indulgence in candy and the "soda-water" counter abominations, are also prolific sources of indigestion, especially in the young. Decay or loss of teeth favor dyspepsia, through contamination and imperfect chewing of the food. Insufficient clothing may induce dyspepsia by chilling the surface of the

Chronic Dyspepsia

body and allowing the blood to be driven inward; this is likely when one bathes in cool water within two or three hours after eating. Diseases of other organs, as of the eye (see Eye-strain), liver, heart, or the sexual organs, may give rise to disorders of the digestive tract, as may also gout, diseases of the lungs, Bright's disease, and diabetes. But nausea and vomiting in women, especially in the morning, and cessation of menstruation, are frequently the first signs of pregnancy.

Symptoms.—Loss of appetite is one of the most common symptoms, the appetite frequently disappears completely on taking a few mouthfuls of food. Pain or tenderness, sometimes severe and usually of a burning character, is felt after eating, just below the breast-bone or over the heart (heart-burn). There is a bad taste often described as salty, and the tongue is coated; nausea is common, and sometimes there is vomiting of food mixed with a good deal of mucus, like that coming from the nose when one has a cold in the head. This vomiting may come on immediately after eating, or perhaps an hour or two later; it may be only retching; it is not particularly frequent; that of drinkers is usually experienced in the early morning. There is frequent belching of wind, and sometimes acid or bitter fluid, and often the abdomen is distended with gas. Headache, dizziness, languor, depression of spirits, and a desire to lie down are other accompaniments. Constipation is the rule. The weight is not often diminished, but sometimes there is considerable emaciation.

Symptoms of this kind, coming on slowly for weeks or months, are suggestive of chronic catarrh of the stomach, the commonest form of chronic indigestion. Much vomiting, especially of dark or coffee-colored material, with pallor and loss of weight and pain in a person of forty or over, indicates a serious condition, as cancer of the stomach, and demands immediate and most careful attention by a physician. People, especially women, who drink a great deal of tea, oftentimes imagine they have heart disease, when the trouble is in reality chronic indigestion.

Treatment.—The treatment is mainly dietetic. Sometimes milk alone, a glass every two hours, will prove most successful for the first week. One way is to combine the milk with vichy or limewater, one or two tablespoonfuls of the water to a glass of milk, sipped slowly as soup is taken. Then the diet should consist of milk, thin, strained gruels of rice, oatmeal, or barley, with soft-boiled eggs, mashed potato, toasted or stale bread and butter, and tea or cocoa; one of these in small amounts every two hours. In mild cases, the latter diet may be used to begin treatment. After two weeks, three meals should be taken daily at the usual times, and, except once daily, of ordinary food, without meat, abstaining from any of the following articles: salt meat and fish, pork in all forms, lobster, salmon, cucumbers, beets, turnips, parsnips, cabbage, radishes, pickles, sweets as candy, pastry, cake, sugar in any amount, ice cream, soda water with sirups, fats, greasy soups,

Nervous Dyspepsia

strawberries, bananas, strong alcoholic liquors, and beer. Hot pancakes and hot bread are undesirable. The patient must chew well; he must not eat hastily or excessively. Local treatment by washing of the stomach is often valuable when directed by a physician. Drinking a glass of hot water with half a teaspoonful of salt on rising is useful, as is also taking ten drops of tincture of *nux vomica*¹ in a wineglass of water before meals, or diluted hydrochloric acid,² in the dose of one-third of a teaspoonful in half a tumbler of water three times a day, half an hour after meals. General treatment is desirable as recommended under *Nervous Dyspepsia*. For symptoms of intestinal indigestion, see p. 202.

NERVOUS DYSPEPSIA.—This is the form of indigestion that affects a large proportion of dyspeptics. The symptoms are often much the same as those just described, but the malady is really a disturbance of digestion without visible change in the appearance or structure of the stomach. The disorder is due to general weakness of the nervous system controlling the digestive apparatus.

The following points may serve to separate nervous dyspepsia from other forms of indigestion: first, it occurs in persons who have inherited or acquired nervous weakness through a life of dissipation, who have business cares or household worries, whose blood is

¹ Caution. Should be prescribed by a physician.

² Poison.

poor, or who are overworked, or lack any regular business interests. Second, there are often other signs of nervous debility besides dyspepsia, such as pressure or pain in the head, eye-strain, backache, dizziness, numbness or coldness of the hands and feet, and an anxious and depressed state of mind. Third, the symptoms change rapidly. The patient, on one day, may complain because the simplest article causes distress in the stomach; perhaps the very next day, however, under the influence of pleasurable surroundings and company, he will eat the most elaborate meal without the slightest ill effect. The digestive discomfort will also disappear when the person is distracted by business or pleasure; but when he has leisure to think of himself, or when he is worried and anxious about his affairs, the symptoms will return. Moreover, such restriction of the diet as will relieve the symptoms of chronic gastric catarrh will make a patient with nervous dyspepsia worse, while on the other hand, if he has been living on a few articles which he imagines are all that he can eat, and can be persuaded to partake of any wholesome food, there will soon be marked improvement in his condition.

Symptoms.—The symptoms are so various that it is impossible to describe them all. There is pain, sometimes “gnawing,” sometimes of a burning character, and a sensation of fullness or distress after eating; there are belching of gas, and annoying rumbling and gurgling sounds. Palpitation of the heart is com-

Nervous Dyspepsia

mon, but vomiting is rare. The appetite is usually good, but constipation is rather the rule. Violent pain in the stomach sometimes occurs (see Pain in Stomach or Abdomen Colic, p. 247).

Treatment.—The treatment consists chiefly in alteration in the mode of life; in the avoidance of tea, coffee, tobacco, and strong alcoholic drinks; in eating slowly, in company, and at regular times; in keeping pleasantly occupied, and in shunning worry and emotional excitement as much as possible. Travel, out-of-door life, and change of air and surroundings are most useful. Some congenial occupation, such as fishing, shooting, walking, bicycling, riding, golfing, botanizing, rowing or swimming, is advisable, providing that one does not overdo it to the extent that exhaustion follows. Sleeping in airy rooms for eight to ten hours, or better in the open air or tents is commendable. All excesses, anxiety about health, and peculiarities in reference to diet should be avoided. Indigestible food, such as is advised against in the article on ordinary Dyspepsia, should not be taken, but otherwise the diet should be, as far as possible, the things which most persons eat. Patients with nervous dyspepsia will not recover on a strictly limited diet, nor will a healthy person living on such a *regimen* fail to acquire dyspepsia. Medicines are of minor importance and are of use only in relieving special symptoms. A three-grain pill of quinine and iron citrate may be taken three times daily, after meals, for pallor and anæmia. Belching of

gas may be stopped by sodium bromide in doses of fifteen grains in water, after eating, but not every day, or bismuth subnitrate, twenty grains, three times a day, on the tongue, after eating. Flatulence may be relieved by teaspoonful doses of spirit of chloroform¹ in a wine-glass of water and repeated, if necessary, at half-hour intervals for a few times. Injections of warm soapsuds are also useful in this condition, or three grains of calomel as a purge. Burning pain in the stomach with weight and pressure coming on one to three hours after eating, and accompanied by gulping up of acid material, is best relieved by five or six soda-mint tablets, or half a teaspoonful of saleratus or baking soda in water. Patients with this trouble should take little salt, avoid alcohol, spices, and pepper; and should not take much starchy food, such as potatoes. The diet should consist of eggs, meat, fish, milk, and bread and butter; the diet recommended by Professor Osler for this condition is three and a quarter ounces of very rare or raw meat, or scraped-beef sandwiches, two slices of bread, with an ounce of butter and plenty of water, three times a day for several weeks. He also advises eating hard-boiled eggs when the burning pain comes on. The general treatment as regards exercise, avoidance of worry, etc., applies here as in other forms of nervous dyspepsia.

These cases of nervous dyspepsia make up in large measure the "cures" of the faith or mind healers; such

¹ Caution. Dangerous.

Vomiting

patients are often foolishly alleged to have had cancer of the stomach, and to have been cured by these healers. But it requires no miracle to make them well; all that is necessary is normal living and the application of a little common sense.

VOMITING.—Vomiting is more commonly due to irritation of the stomach and bowels, produced by some indigestible or improper food. It is, therefore, wise not to give more food to the patient, but to get rid of the source of trouble and secure rest for the digestive organs.

Treatment.—If the patient will swallow large quantities of hot water the result will be a washing out of the stomach, and the same sort of treatment should be given the bowels, that is, the use of injections of warm soapsuds into the rectum or “back passage” until the bowels move satisfactorily. Most cathartics will be vomited as soon as swallowed, but, if vomiting is not constant, one or two compound cathartic pills for adults, or one-grain pills or tablets of calomel for babies and children are advisable. The patient should rest quietly on his side in bed, and a mild mustard paper, not poultice, placed over the stomach.

No food should be taken by the patient for twelve or twenty-four hours, or until nausea and vomiting cease. A teaspoonful of cracked ice and water, or hot water (if more agreeable), may be sipped as often as necessary to relieve thirst. When vomiting ceases, the patient may take milk mixed with one-third its bulk

of limewater, clam juice, beef juice squeezed from a slightly broiled, rare steak, or white of egg stirred into a quarter of a cup of cold water and flavored with a few drops of lemon juice; one of these in teaspoonful doses every two hours at first, and increasing the amount if the patient retains the food satisfactorily.

In persistent vomiting, tablespoonful doses of iced, dry champagne will sometimes be borne better than anything else. Among drugs, two tasteless, white powders are perhaps the most successful in relieving vomiting of indigestion: subnitrate of bismuth in doses of a third of a teaspoonful, and cerium oxalate in doses of five grains. They may be used separately, or, better, combined, and should be dropped dry on the tongue¹ every two to four hours. The diet may be extended to milk toast, cereals, etc., as improvement takes place.

Nausea and vomiting following a drinking bout may be relieved by washing the stomach and bowels, as recommended above, and by giving drop doses of tincture of *nux vomica*,² or wine of *ipecac*, every hour in a teaspoonful of water. As soon as easily digested nourishment can be retained, such as soft-boiled or dropped eggs on toast, hot milk, etc., improvement will be rapid.

Seasickness.—The vomiting of seasickness may be prevented in some cases by proper preliminary precautions. If persons about to undertake a sea voyage will

¹ Prescribed by a physician.

² Caution. Dangerous.

Vomiting

refrain from unnecessary fatigue, caused by shopping, packing, farewell visits and the like, and will not upset the stomach by partaking of parting dinners, but keep in good general condition and take sodium bromide (about twenty grains in water three times daily for a period of three days) before sailing, and also secure free action of the bowels during this time, they will be much less likely to have a severe attack. Freedom from seasickness will be all the more probable if, when aboard ship, the voyager immediately lie down in his berth away from sights, sounds, or smells in a well-ventilated room, and take only such light nourishment as clam juice, broths, koumiss, and gruels. It is also well to keep the eyes closed, so as to avoid seeing the movements of the sea or vessel. Iced, dry champagne will sometimes relieve the vomiting, if given in tablespoonful doses at half-hour intervals. A hot-water bottle at the feet, and mustard plaster over the stomach are also serviceable in severe attacks.

Pregnancy.—In vomiting of pregnancy, which is common in the first three or four months, it is best for the patient to stay in bed until after breakfast, or, if the vomiting is frequent, keep to the bed all the time. Contrary to the usual rule, the patient should be fed regularly without any regard to her feelings or to the vomiting. Milk mixed with about a third of its bulk of limewater or iced soda water, beef juice, raw eggs with a little sherry, raw oysters or broths should constitute the diet, one of these being given

every two hours. Bismuth and cerium oxalate are also useful as advised above. Vomiting in the latter months should excite suspicion, and demands the immediate attention of a physician. If vomiting is so frequent that the patient is losing weight and strength she should remain in bed until it is arrested.

These are the simplest remedies, but there are many other means which are at a physician's disposal, and a woman should always consult a medical man as soon as she suspects pregnancy, as certain complications may arise, which, if not properly attended to, will end fatally in many cases.

Causes of Vomiting.

Disorders of Digestive Organs.

Acute indigestion, especially in children.

Chronic indigestion.

Ulcer of stomach (see Vomiting of Blood, p. 200).

Cancer of stomach.

Cholera morbus.

Cholera infantum.

Foreign bodies, poisons, alcohol, etc., in the stomach.

Irritation of Other Abdominal Organs.

Inflammation of the bowels.

Appendicitis.

Pregnancy.

Vomiting

Rupture (hernia).

Intestinal obstruction (obstinate and complete constipation).

Colic from gall, kidney, or bladder stones.

Menstruation.

Worms.

Disease of the liver, pancreas, and sexual organs in women.

Irritation of the Throat, with Cough.

Consumption.

Whooping cough.

Severe cough of any kind.

Irritation of Brain.

Tumors.

Apoplexy.

Meningitis.

Miscellaneous.

Carsickness.

Seasickness.

Hysteria.

Severe pain.

Ether, chloroform, etc.

Diseases of the ear.

Diabetes.

Kidney disease.

Sick headache (migraine).

Eye-strain.

Kenelm Winslow

In the Course of the Following Diseases, Especially During First Stages.

Influenza.

Malaria (particularly in babies).

Scarlet fever.

Smallpox.

Pneumonia.

Yellow fever.

Indigestion.—Vomiting from indigestion is the most common and least serious. Sometimes the vomiting is only the symptom of indigestion, but usually it is due to some indiscretion in the diet. One or more of these symptoms are generally present: coated tongue, bad taste, pain or discomfort in the stomach or bowels, headache, drowsiness and listlessness, and diarrhea; the latter symptom is a condition peculiar to cholera morbus, cholera infantum, and acute indigestion of babies.

With disease of the other abdominal organs there is usually severe pain in the region in which the trouble is located, as in appendicitis, inflammation of the bowels and colic from the passage of gallstones or kidney stone, and distention of the abdomen.

In disease of the brain there are usually one or more of the following symptoms: severe and constant headache, stupor or unconsciousness, convulsions or paralysis.

Diabetes, etc.—The vomiting from diabetes, which

Vomiting of Blood

is usually the result of previous ill health, is marked by the passage of large quantities of urine, intense thirst, presence of boils, or by unconsciousness; that of most kidney disease by history of headache, pains in the loins, swelling of the feet and hands, puffiness under the eyes, dry skin, shortness of breath, pallor, etc.

In sick headache we usually find that such attacks have been frequent.

Fevers.—The vomiting of fevers is commonly accompanied by headache and backache, often by sore throat, and, later, an eruption on the skin or other symptoms peculiar to the special fever. The treatment of vomiting must, of course, differ more or less with the cause; in many cases it is of no consequence as compared with other conditions present.

For further details in reference to the subject the reader is referred to the special articles in this book on the diseases noted as causing vomiting.

VOMITING OF BLOOD (*Hematemesis*). — Blood from the stomach is accompanied by retching and vomiting, and is often darker than that issuing from a wound, sometimes it is brown or almost black and clotted, but occasionally quite red. It may look like coffee grounds. It is often mixed with food. There is usually a history of an acute infection, or a disease of the stomach, liver, or spleen. It must be distinguished from blood coming from the lungs, which is usually brought up by coughing, and is alkaline, bright red, and frothy, and accompanies disease of the heart or lungs.

Treatment.—A physician must be summoned at once. Meanwhile the patient must keep absolutely quiet in bed, and must not even talk. Small bits of ice may be swallowed and ten drops of laudanum¹ given in a little ice water. It is advisable to apply ice over the stomach in an ice bag or sponge bag. No food must be given by the mouth for days. The bowels should be emptied by an injection of warm soapsuds once a day, and a glass of warm milk containing the whites of two eggs and a little salt should be injected twice a day slowly into the bowel (after removing the tip of the syringe a towel should be held tightly over the entrance of the bowel to prevent the escape of the liquid). For three or four days after the bleeding has ceased, a half cupful of warm milk or strained gruel made from barley, rice, or oatmeal may be taken every hour. During the second week a cupful of milk may be taken every two hours, and raw egg beaten in milk once daily; in the third week, gruels, egg, and toast every three hours.

Vomiting of blood is a symptom of various conditions. Acute or toxic gastritis may cause it. Coming on, in young women, with pain after eating, and of a bright-red color, it is usually a sign of ulcer of the stomach, which is a curable disorder in most cases, under a physician's treatment. Cancer of the stomach is a frequent cause. Blows, kicks, and injuries to the belly-wall over the stomach may cause vomiting of blood. Swallowing blood from a nose-bleed,

¹ Caution. Dangerous.

Intestinal Indigestion

especially if it occurs at night, or from any source of bleeding in the mouth or nose, as from extraction of tooth, may lead to the symptom, and requires no treatment. Occasionally it is seen in persons without any apparent cause and in whom it never recurs. Disease of the heart, liver, and spleen, scurvy, yellow fever, smallpox, measles, severe anæmias, influenza, dengue or breakbone fever, and purpura sometimes produce this symptom. In women it rarely appears in place of the normal menstruation. Patients very rarely die while vomiting blood or directly from it.

INTESTINAL INDIGESTION.—In this form of indigestion, the food after leaving the stomach, in two or three hours after the last meal, does not properly digest in the bowels, but begins to ferment and form gas which distends the intestines and causes distress by pressing on the nerves of neighboring parts. This condition varies from a slight amount of fullness and discomfort to intense pain in the pit of the stomach, or elsewhere in the belly, and is only relieved by belching up wind from the stomach or passing it from the bowels. Palpitation and pain about the heart are also common symptoms, from pressure of the distended stomach which interferes with the action of this organ. Poisons, produced by the fermented food in the intestines, are absorbed into the blood; these are called ptomaines, and irritate the nervous system so that headache, backache, and neuralgic pains result. The skin is not clear and ruddy, but dull and muddy in color;

eruptions are not uncommon; the whites of the eyes and inner surface of the eyelids are apt to present a yellowish appearance, and the tongue is soft and flabby, has often a brownish coating, and is marked on the edges by imprints of the teeth. Constipation is rather the rule, although diarrhea with slime or mucus is not uncommon; these conditions often alternate. The poisons, generated by the decomposing food in the bowels, escape from the system in the urine, and in so doing irritate the urinary organs. Frequent and painful passage of urine often occurs. In their effect upon the nervous system these same poisons cause insomnia or sleepiness, depression of spirits, and the symptoms seen in nervous prostration (see p. 13).

It is believed by the medical profession that chronic intestinal indigestion, with constant absorption of poisons from the putrefactive contents of the bowels, leads to such irritation of the heart, kidneys, and other organs that chronic diseases are the inevitable result. Many "chronic invalids" or hypochondriacs are such by reason of this affection.

Intestinal indigestion is to be distinguished from stomach indigestion by the fact that although pain may occur in the region of the stomach, it does not come on till some time after eating, and there are no stomach symptoms, as nausea or vomiting. The general distention of the belly, and passage of gas from the bowels, and slight yellowness of the eyes are also characteristic of intestinal indigestion.

Intestinal Indigestion

Treatment.—This depends chiefly on limiting the amount and variety of food. Rest, fresh air, warm clothing, moderate exercise, freedom from care are the first requisites. For a few days, or during the first week of treatment, the diet may be restricted to warm milk containing a third part of barley gruel, limewater, a glass every two hours, and sometimes koumiss or buttermilk. When milk is not agreeable to the patient, broths, gruels, and eggs may be substituted; starches must be avoided. After this preliminary treatment, and when the symptoms have begun to subside, the following diet should be followed indefinitely, not using any vegetables at first: eggs, poached, scrambled, or soft boiled; rare beef, lamb, mutton, roasted or broiled, poultry, veal occasionally, but no corned beef, ham, or pork in any form, except crisp bacon; fish of all kinds, except salt fish, oysters, clams, but avoiding lobsters and crabs; white bread, rye or Graham bread a day old and toasted, with a liberal supply of butter should be freely taken; plenty of water, especially between meals, to the amount of six to eight glasses daily; weak, black coffee, without sugar or cream, once a day; green vegetables, as lettuce (without mayonnaise dressing), green peas, string beans, asparagus, only one at a meal. Avoid all the following: potatoes, onions, cabbage, baked beans, cauliflower, carrots, turnips, parsnips, beets, celery, corn, radishes, egg plant, oyster plant, tomatoes, all fruits, cereals, candies and sweets of all kinds, pies and pastries, nuts, rich gravies, and thick

soups. The simple puddings, ice cream, and cooked fruits, as baked apple, stewed peaches and pears, but no berries, may be allowed.

An occasional dose of calomel is useful, particularly when there is any yellowness of the eyes or tongue, three to five grains, followed by a Seidlitz powder in six or eight hours, once or twice a month. An ounce of castor oil (without a Seidlitz powder) may be substituted. The bowels must be kept regular every day by some cathartic, such as aromatic fluid extract of cascara sagrada, fifteen to sixty drops at night. The patient should eat rather sparingly, and be guided by the general advice given under Nervous Dyspepsia. All excesses should be avoided, and tobacco or alcohol used with the greatest moderation.

ACUTE DIARRHEA; ACUTE CATARRH OF THE BOWELS (*Acute Catarrhal Enteritis*)—**Treatment.**—Children and persons with severe attacks should remain in bed. No solid food should be taken. A cathartic is advisable at the beginning of the attack: three grains of calomel, a tablespoonful of castor oil or a Seidlitz powder. If, however, the diarrhea has existed severely for several days before beginning treatment, the cathartic may be omitted. Milk gruel, made by boiling flour in milk, boiled rice, or milk toast constitutes the best diet for diarrhea. If nausea or vomiting are present a teaspoonful of cracked ice with a few drops of brandy may be swallowed at frequent intervals. Water is permissible in all cases, but in

Acute Diarrhea

small quantities at a time, and often enough to relieve thirst. Cracked ice is preferable. Pain in the belly is treated by applications of hot towels, a mustard poultice, a flannel wrung out in turpentine and afterward in hot water, by paregoric¹ in teaspoonful doses hourly, or ten drops of laudanum¹ with a teaspoonful of spirit of chloroform. The best remedies to stop the diarrhea are bismuth subnitrate, a quarter teaspoonful every three hours, or chalk mixture, one tablespoonful every two hours as long as the attack lasts, since both these drugs are absolutely harmless. If the trouble continues more than a day or two then opium¹ should be given in the form of paregoric or laudanum, as advised above for pain, two or three times daily until the diarrhea ceases. In ordinary attacks without much pain, opium is not advisable. A warm flannel covering about the belly will aid recovery. If the bowel discharges are frequent and watery, and do not improve under the treatment just advised, then tannic acid may be taken in five-grain doses three times daily, in pills or capsules, along with the laudanum or paregoric.

Conditions.—Diarrhea consists of frequent and soft or watery discharges from the bowels, varying in number from two or three to a dozen or more daily. It is commonly due to catarrhal inflammation of the mucous membrane lining the inside of the intestines, and this, or other causes, increases the nervous irritability and the movements and secretions of the bowels,

¹ Dangerous. Use cautiously.

so that their contents are expelled more rapidly than usual and in a more liquid state. The color of the passages is commonly light yellow, but may be greenish from excess of bile, slimy from mucus, or colorless and watery. Diarrhea is often accompanied by pain, either continuous or occurring with the movements of the bowels, and sometimes by fever (temperature 101° to 102° F.), nausea, loss of appetite, and vomiting. Rarely cold sores on the lips and pains in the muscles and joints occur.

Causes.—Diarrhea is brought on by various causes among which are the following: stomach disorders preventing the completion of gastric digestion; extension of adjacent inflammation, as in peritonitis; extensive burns; acute infections, such as typhoid fever; overeating and drinking; changes in temperature, which lower vitality, particularly in children; exposure of the abdomen, when insufficiently covered, to cold; wet and draughts; certain articles of food; indigestible or excessive food, especially unripe fruit; chemical or toxic poisons, as those generated in milk which is kept too long and improperly handled, so as to become contaminated with dirt and germs. This is the cause of the fearful and needless infant mortality from “summer diarrhea” and cholera infantum. Also it is the cause of ice-cream and cream-puff poisoning, and poisons swallowed by accident or intent, and germs existing in decomposing animal and vegetable foods, as in food improperly canned, overripe fruit, or impure drinking

Simple Diarrhea of Children

water. Sometimes diarrhea is produced by purely nervous causes, as by fright and anxiety, as for example, it often attacks students before examinations, and surgeons before difficult operations. (For Chronic Diarrhea, see p. 217.)

SIMPLE DIARRHEA OF CHILDREN.—This, although the least severe, is of the greatest importance, since the more serious forms of diarrhea often begin with the simple variety, and, after the child is weakened by the latter, germs of the dangerous forms more readily find a foothold. Therefore, it is exceedingly unwise to neglect diarrhea in an infant, particularly during hot weather. Simple diarrhea is caused commonly by overfeeding, or improper feeding (see Infant Feeding, p. 118), or any trouble weakening digestion, such as teething, etc. Improper feeding is the most common cause in producing intestinal indigestion, and the indigestible matter occasions irritation of the bowels and rapid expulsion of their contents. Other causes, noted under the consideration of diarrhea in adults, may sometimes provoke an attack in children.

Symptoms.—The trouble begins with restlessness, and sometimes with crying and fretfulness, owing to pain due to gases in the bowels. The discharges become frequent and loose, but without slime or blood, nor do they have the appearance of water, as seen in cholera infantum. The passages from the bowels may present a greenish appearance, but this is not of serious import, and may only mean escape of bile. There is

slight, if any, fever, although thirst may be great on account of the loss of water from the blood in the numerous bowel movements.

Treatment.—No food of any kind, nothing but boiled water which has been cooled, should be allowed for twenty-four hours. Two teaspoonfuls of sirup of rhubarb, or a teaspoonful of castor oil, should be given as soon as possible. Ten drops of paregoric,¹ or one drop of laudanum,² may be used if there is much pain, and repeated at three-hour intervals, if necessary. The best remedy to employ as long as the diarrhea lasts, is a saltspoonful of bismuth subnitrate mixed with a little sweetened water and dropped on the tongue three times a day. The food should be the same as that recommended for summer diarrhea.

SUMMER DIARRHEA OF CHILDREN; MILK POISONING; CATARRH OF THE STOMACH AND BOWELS (*Enterocolitis*).—The disorder known by these various names is probably the most common, and is the cause of more deaths than all the other diseases of infancy put together. It occurs during hot weather, and almost exclusively among babies who are artificially fed, not in breast-fed infants. For this reason it is more frequent during the second year of child life. The chief cause is impure milk or, rather, poisons formed by germs which have gained entrance, through improper or uncleanly handling, or because the milk has been kept too long. Recent ob-

¹ Caution. Dangerous.

² To be ordered by a physician.

Summer Diarrhea of Children

servations go to prove that the various forms of summer diarrheas of children are caused by the same germ which produces the dysentery of adults so common in the Philippines and Japan, and which has proven so fatal to military forces in the tropics. (For treatment, see p. 213.)

Symptoms.—Mild cases often develop slowly with an increasing number of bowel discharges, of a brownish, yellowish, grayish, or greenish color, and containing curds of milk or other undigested food. In other cases it may begin suddenly with loss of appetite, fever (temperature 101° to 102° F.), thirst, vomiting and pain in the bowel, and crying. The baby may be either restless or listless and sleepy, and convulsions are not uncommon. The bowels are often distended with gas, with frothy discharges of an unusually offensive odor. The poisons, produced by germs growing in the contents of the bowels, lead to inflammation of the lining mucous membrane, and formation of mucus (as in a bad cold in the head), pus, and, in severe cases, to destruction of tissue and blood vessels in the intestines (ulceration) with bleeding, so that mucus, pus, and blood often escape in the discharges, giving them a slimy or bloody appearance. In mild attacks, slime may not be seen in the beginning, and blood is usually a sign of a special form of diarrhea, called dysentery (see Dysentery, p. 212).

The number of bowel movements vary greatly from two or three to a dozen or two daily, and after a while

the poisons in them so irritate the skin about the exit of the bowel (anus) that it becomes red, raw, and sore. This state must be offset by constant cleansing with pure soap and water, and dusting with a mixture of powdered starch and zinc oxide, or starch alone. Loss of weight is soon apparent; first by softness and flabbiness of the flesh, and then by emaciation. Very mild cases may recover in a few days with proper care, but when much mucus or pus is seen in the discharges it is evident that actual inflammation exists, and several weeks of careful treatment are necessary before health is restored. If the discharges contain little slime or blood, but only curds and undigested food, and fever and weakness are slight, the chances for rapid convalescence are good. The probability of recovery in any case is, however, entirely dependent on the kind of feeding and general care the baby gets, medicine playing but a small part.

CHOLERA INFANTUM; ACUTE MILK INFECTION.—This very fatal but comparatively rare form of diarrhea is seen also exclusively in artificially fed babies, and such as are given other food than milk. It is a rapid, violent form of poisoning by infected milk. Cholera infantum comes on suddenly in hot weather, with constant vomiting and diarrhea. The face becomes very pale, the eyes are sunken, and the features are pinched and expressive of alarm and suffering. The skin is often cold and clammy, but the thermometer, if placed in the bowel, shows a very high

Dysentery

temperature (102° to 107° F.). The pulse is rapid and weak, the breathing shallow and hurried. The passages, at first of a somewhat normal color and consistency and containing curds, become rapidly looser and paler, until finally only copious discharges, resembling water, escape from the bowels. The fluid part of the blood is thus drained away, for there are often as many as thirty or more discharges in the twenty-four hours. *Vomiting is also constant and aggravated by drink, food, and later by the presence of mucus and bile.* The baby wastes away before the eyes, and from being fretful and restless becomes dull, stupid, and, finally, unconscious, with the head thrown back, eyes half open, and lips apart. The diarrhea and vomiting may stop, but the child dies in unconsciousness. The course is very rapid, and death often occurs in a few hours. A marked improvement, or fatal ending, is the outcome within two or three days. Cholera infantum may be distinguished from other forms of diarrhea by the suddenness and violence of the attack, with constant vomiting, large, watery bowel discharges, and great weakness and high fever. (For treatment, see p. 213.)

DYSENTERY.—In this form of diarrhea the lower part of the bowels is attacked by inflammation. Great straining and pain attend the bowel movements, which are sometimes almost continuous (281 have been noted in thirty-six hours by one observer). They are bloody and slimy and small in amount, and the con-

stant straining leads to protrusion of the bowel. There is fever (temperature 101° to 102° F.), rapid pulse, loss of flesh, anxious, pinched face, and tender, swollen belly distended with gas. If the discharges become less frequent and more natural in appearance, with little slime and blood, and the expression brighter and less careworn, the chances of recovery within a week are bright, but if the face is pale and anxious, the vomiting continuous, the bowel movements frequent, the belly swollen and tender, and restlessness, sleeplessness, moaning, and convulsions are present, with little or no urine passed, the outlook is bad indeed. (For treatment, see below.)

Treatment of Summer Diarrhea, Cholera Infantum, and Dysentery.—The treatment of these disorders must be prompt and, to a certain degree, heroic. No preconceived ideas or foolish sentiment for the suffering infant should be permitted to intervene, as the result may be fatal. Interference from well-meaning but misguided relatives, neighbors, or friends, thought to be wise in the management of children, is particularly common, and as frequently defeats in the most complete manner all the doctor's efforts. Parents often heed the advice of kindly but officious friends, who think the treatment too harsh, and urge special or patent foods which may have proved efficacious in other cases.

The essence of treatment consists in ridding the stomach and bowels of the offending poison, and then

Dysentery

in giving these organs absolute rest for a time by *total abstinence from all food*. Unless the diarrhea has continued for some days in a severe form before treatment is begun, a cathartic should be given at the start no matter how bad the attack. One to two teaspoonfuls of castor oil, or one to two grains of calomel¹ in quarter-grain powders or tablets hourly, are most suitable for a baby of one to two years of age. If there is vomiting, the calomel will be retained better than the oil. In sudden and severe vomiting and diarrhea, as in cholera infantum, a doctor should, of course, be summoned at once, since he can wash out the stomach as well as the bowels, and this is by far the most rapid and effective manner of getting rid of the poison.

When a doctor is not obtainable the baby's stomach may be cleansed by giving it tepid water to drink; this will encourage vomiting and at the same time make it much easier than if the stomach were empty. If the water is refused the child's nose may be held until the mouth is opened for air, when the water must be poured down. It is not cruel to enforce such treatment. All water given the baby throughout the illness must be first boiled to kill all germs therein, and then kept cool in the ice chest.

The use of injections into the bowel are also of the greatest service. If the temperature is high (over 103° F.) in the beginning, cold or ice-water injections of a cup of water, at hourly intervals, should be given.

¹ To be ordered by the physician.

When mucus appears in the bowel discharges, injections of a pint of warm water, with the baby lying on his back and hips raised on a pillow, may be given once or more daily. The water should be allowed to flow in slowly and gently; if given from a fountain syringe, the bag should not be raised more than two feet above the child, and the injection continued until a pint has flowed into the bowel, although most of it will probably escape from the bowel during the process. Pain caused by gas will often be relieved by injections of warm water.

In dysentery, injections are particularly valuable at first, and should be given after every movement, when it will soon be found that the discharges have become much less frequent. In dysentery, as much boric acid as half a pint of warm water will dissolve may be added to an equal amount of warm water for an injection.

In cholera infantum, half a teaspoonful of common salt should be added to each injection of a pint, and as much as a gallon of water should be injected during the first twenty-four hours. The water not only washes out the poison, but supplies the waste of fluid from the blood.

In mild cases of diarrhea, without the presence of much slime or any blood in the discharges, the injections may be omitted altogether. A baby suffering from diarrhea and vomiting should be absolutely starved for at least twenty-four hours, and during this

Dysentery

time should receive nothing but cool water which has previously been boiled.

The medicinal treatment consists in giving about a saltspoon level full of bismuth subnitrate mixed with boiled water, four times a day. This may be continued as long as the trouble lasts and is entirely harmless, although the drug colors the discharges almost black. Ten drops of brandy or whisky in a teaspoonful of boiled water should be given about three or four times daily, if there is much weakness. If at any time there is much pain during the course of diarrhea, it may be relieved by giving a year-old infant ten drops of paregoric, or one drop of laudanum¹ in a little sweetened water, repeating the dose once every two hours until a quieting effect is obtained. Both of these preparations contain opium, and should not be used unless clearly indicated by considerable pain.

The feeding is of the utmost importance. After twenty-four hours of starving, either broths, egg water, or barley water should be given. Milk is not suitable as a food. Egg water is made by stirring the whites of three eggs into a pint of cold boiled water, adding a little salt. Broths of beef, mutton, veal, or chicken are made by placing one pound of meat, free from fat, in a glass jar on the ice for three hours, and then slowly cooking it on the stove for three more hours, when it is allowed to cool, the fat skimmed and a little salt added. To make barley water, put two

¹ Caution. Dangerous. Use on physician's order.

teaspoonfuls of barley in a pint of cold water, boil down to two-thirds of a pint, and strain. A few ounces of one of these, that is, of egg water, one of the broths, or barley water, should be warmed and given in the bottle, or with a spoon every two hours. The choice will depend chiefly upon the preference of the baby, unless the bowel discharges are frothy, when the barley water had better be withheld.

This dietary must be continued until the diarrhea has ceased, when milk may be given, beginning with only one or two feedings daily, and diluting the milk with four times as much water. No matter how sick the baby is, except in cholera infantum, if the surroundings are unfavorable, a change to the cool, pure air of the country or seaside will be of great advantage, when the baby should be kept out of doors as much as possible. Unless suffering from the most violent form of milk poisoning, an infant will usually recover from summer diarrhea, if the treatment herein outlined be followed conscientiously and persistently, and hysterical excitement and advice from would-be helpers be avoided. Frequently an infant shows wonderful powers of recuperation.

CHRONIC DIARRHEA. — Chronic diarrhea means a chronic inflammation of the mucous membrane lining the intestines, resulting in destruction of tissue and the formation of ulcers; the latter condition is indicated by the appearance of blood and pus in the bowel passages. Chronic diarrhea follows acute diar-

Chronic Diarrhea

rhea, dysentery, and sometimes typhoid fever. It is apt to occur among persons crowded together, as in camps and prisons, when the bowel discharges and urine are not properly disposed of or disinfected. Disorders of the heart, liver, and kidney, tuberculosis, malaria, anæmia, and diseases of the nervous system may cause chronic diarrhea.

Symptoms.—Diarrhea often alternates with constipation. The number of daily passages varies from one to eight, and the discharges from the bowels are loose and often contain mucus or slime, sometimes in the form of sagolike grains, or in white, opaque masses. Pus, blood, and shreds of tissue are generally signs of ulceration, or raw, sore spots which eat into the lining membrane of the bowel. The discharges are of various colors: yellow, brownish yellow, green, black, slate, or white. Pain in the belly, rumbling noises in the bowels, and distention are common conditions. Loss of appetite, coated tongue, bad taste, depression of spirits, general weakness, emaciation, and paleness usually follow in time. The outlook in this disease is especially unfavorable for children and elderly persons, and in those weakened by other disorders. Months and years may be required for recovery, and during this time there may be many reverses. The longer it has lasted the more difficult is it to cure. Constant pain, with *constipation*, distention of the belly, and the bowel discharges covered with mucus indicate the same condition which is generally associated with

diarrhea, but in this case the trouble is situated in the upper part of the bowels.

Mucous Colic in Women.—A form of chronic diarrhea, common to nervous women between the ages of twenty and forty-five, is due, not to actual inflammation of the mucous membrane, but probably to constant irritation of the bowels, produced by chronic constipation combined with a strong nervous taint. Most of the patients are very emotional, overworked, or in a condition of chronic worry, or have nervous prostration, hysteria, or some other form of nervous weakness. This disease, called mucous colic, begins with chronic constipation and a history of indigestion lasting for a long period; there are numerous painful passages of mucus, either alone or mixed with the ordinary bowel discharges, and rumbling noises in the bowel. This is because the mucus sticks closely to the walls of the bowel, and great effort is required to detach and expel it. The mucus appears as a transparent jellylike substance, as slime, or in the form of white strings, and occasionally as a tubular membrane, looking like a piece of altered bowel. An attack, characterized by pain and numerous passages of mucus alone or mixed with bowel discharges, lasts several hours or days. During freedom from the trouble constipation is the rule. Worry or mental emotion tends to bring on the disorder.

Treatment of Chronic Diarrhea.—Rest in bed and a diet consisting of boiled milk, half a pint every two

Chronic Diarrhea

hours, together with half a teaspoonful of bismuth sub-nitrate, three times daily, constitutes the best treatment. When milk does not agree with the patient, the raw white of egg stirred into cold water may be taken; broths or strained gruels made of barley, oatmeal, or rice, are also beneficial. Change of climate is often of most service. When ulceration of the bowel is present, as shown by the appearance of slime or blood in the bowel discharges, injections, given with a fountain syringe, into the bowel are of most value. The patient's hips should be raised in bed by a pillow under the lower part of the back, and a quart or two of warm water should be allowed to flow slowly into the bowel and retained as long as possible. Thirty grains of silver nitrate dissolved in a quart of water makes a good injection, also lead acetate (sugar of lead), boric acid, or sulphate of copper (blue vitriol), in the proportion of a teaspoonful to a quart of water, may be used to advantage. The injections should be given once daily, and if they cause much pain should be preceded by a small injection of thirty drops of laudanum in a cup of warm water. Chronic diarrhea sometimes occurs only after eating; in these cases, rest in bed after each meal may prove curative.

Treatment of Mucous Colic in Women.—Cure of constipation and building up the strength and weight are the prime essentials. This disease had long been considered incurable until Van Noorden succeeded in curing sixty out of seventy-six patients by the follow-

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ing treatment. Such treatment is, however, most successful when carried out in a sanatorium under the control of a physician. Pain is relieved by introducing a suppository containing a quarter of a grain of opium and a quarter of a grain of extract of belladonna into the bowel, and using hot cloths over the belly. Suppositories are little conical bodies made of some substance which melts when placed in the bowel. The suppository should not be used except when pain is considerable, and two hours before the injections, if these cause much suffering. The hips should be raised on a pillow, and with the patient on her back a quart of warm water is allowed to run slowly into the bowel from a fountain syringe, to be retained as long as possible. After it has come away, half a pint of olive oil is injected into the bowel and allowed to remain for two hours, when another injection of a quart of warm water is given. So much for the first day.

Thereafter, one injection of warm water is given daily until the bowels move naturally by the use of a proper diet. This diet consists in the use of much fat, to build up the patient, and coarse bread and fruits to move the bowels. Beginning at 7 A.M., the patient should be nourished every two hours. During the day she should take five glasses of rich milk and a pint of cream, most of which may be added to the milk. There should be two regular meals, at 1 and 7 P.M.; at lunch the patient should take some kind of fruit having large seeds and thick skins, such as stewed

Bloody Flux

currants, gooseberries and cranberries, or fresh grapes, and during the day consume about half a pound each of butter and coarse Graham bread. Rest in bed for a week or so is advisable at the beginning of the treatment. Some discomfort in the bowels will be felt until the patient becomes accustomed to the change of diet.

In nervous or hysterical women this treatment may be accompanied by an occasional pill containing asa-fetida (three grains); this will relieve flatulence, besides being calmative.

BLOODY FLUX; ACUTE AND CHRONIC DYSENTERY IN ADULTS.—This is an inflammation of the lower part of the bowels, manifested by frequent, painful passages of blood and slime (mucus) in the acute cases, and of diarrhea, alternating with constipation, in the chronic forms.

Dysentery occurs in single cases or in epidemics. In military camps it has proved more fatal than shot and shell; it is very severe in the tropics, and is the cause of a large part of the sickness among the soldiers in the Philippines, Porto Rico, Cuba, and South Africa. Two special microscopic organisms are known to cause dysentery, but the cause of the most common form of the disorder in this country is as yet unknown. In temperate parts of the United States cases of dysentery are most apt to occur in late summer and autumn. Unripe fruit, impure water, etc., are commonly spoken of as causes.

Symptoms.—The common variety begins with slight pains in the belly and diarrhea, at first free and painless; within thirty-six hours there are frequent passages of slime and blood, and small masses of excrement, from 15 to 200 in the twenty-four hours. The movements are accompanied by much pain in the belly and straining, and there is a constant feeling of unsatisfied desire so that the patient is running continually to the closet, or is inclined to stay there for an indefinite time. Fever, not usually high (102° to 103° F.), coated tongue, rarely a chill at the onset, and occasionally nausea and vomiting are also accompaniments. After the end of a week the blood usually disappears, and the passages consist of soft, greenish matter with slime, but these gradually regain a normal appearance so that in most cases recovery ensues within ten days. In epidemic dysentery or dysentery occurring in the tropics the course is often more severe, and not infrequently fatal. Beginning with slight fever, pains in the belly, and diarrhea with mucus, the passages soon consist of blood and mucus or blood alone. The fever is high (103° to 104° F.), there is great straining and pain, and constant desire to move the bowels; cramps in the arms, legs, and muscles often occur. The joints may become painful and swollen. The pulse becomes weak and rapid, thirst is intense, the tongue is coated, and great weakness and even delirium appear. If improvement takes place these symptoms abate, the fever and frequency of the passages lessen, and the

Bloody Flux

patient is on the road to recovery in two or three weeks, unless the disease becomes chronic. The latter form is unfortunately only too common, owing often to unsuitable surroundings, or improper care and food, and may persist indefinitely unless these conditions can be improved.

Treatment.—Absolute quiet and rest in bed, even in chronic cases, is imperative. The diet is most important, and should consist of boiled milk and white of egg stirred in cold water. When curds appear in the bowel passages, showing that the milk is not being properly digested, broths, whey (made with rennet and milk by straining off the curd), and beef juice squeezed from rare beef, should be given, but not beef tea, which stimulates the activity of the bowels. Strained rice and barley gruel may be added to the broths, and if milk is not well digested it may be partially digested before it is taken by following the directions on Fairchild's peptonizing tubes. At the beginning of the attack two tablespoonfuls of castor oil, or a heaping tablespoonful of Epsom salts, should be taken. Following this, fifteen grains of flowers of sulphur with five grains of Dover's powder should be swallowed every three hours for a few days, or until pain and bowel passages diminish. Hot cloths or hot, light-weight poultices may be applied frequently to the belly to relieve griping and distress. A teaspoonful of laudanum¹ in half a cup of warm starch solution (made

¹ Dangerous

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by boiling starch in water) is very useful in relieving pain when injected into the bowel.

Change of climate is most desirable in chronic cases. When the disease has a tendency to become chronic, one of the best remedies consists of twenty grains of bismuth subnitrate with ten grains of salol¹ taken three times daily for a considerable period, unless the urine grows smoky-colored, when the salol should be omitted until all traces of cloudiness disappear, and must then be taken in five-grain doses. A warm, flannel bandage should be worn about the belly, and the patient should stay in bed and take only the boiled milk and white of egg and water, and broths with rice and barley in them. Daily injections of from three to six pints of warm water containing twenty grains of silver nitrate to the pint, alternating these on every second day with injections containing thirty grains of quinine to the pint, constitute the most effective treatment. The patient should lie on the back with the hips raised on a pillow, and the fluid injected very slowly from a fountain syringe elevated only two feet above the bed. The fluid must be retained as long as possible. Change from the diet prescribed to ordinary food should be very gradual, avoiding especially fruits and coarse vegetables. It is absolutely essential that the bowel passages of dysentery be disinfected by mixing them with quicklime or chlorinated lime. During epidemics all persons should drink only boiled water.

¹ Caution. Dangerous for some patients.

Cholera Morbus

CHOLERA MORBUS.—This is a violent inflammation of the stomach and bowels, due to poisons formed in the digestive canal and occurring in hot weather, especially when accompanied by cool nights. The disease attacks healthy, young adults chiefly, and is caused by indigestible food, such as raw vegetables, underripe or overripe fruit, salads, spoiled meat and fish, and impure water. Exposure to cold, overfatigue, and nervous exhaustion may bring on the disorder.

Cholera morbus comes on suddenly, more often at night. The patient is seized with a feeling of oppression in the stomach and nausea, followed by violent vomiting and diarrhea. In severe cases, watery discharges escape in large amounts both from the stomach and bowels. Violent pains in the belly accompany the vomiting and purging, and cramps often attack the calves of the legs and other parts of the body. The loss of so much water from the blood causes intense thirst. The patient is greatly exhausted by the continued drain on the body and by the pain. The face becomes pinched, the eyes sunken, the pulse is rapid and weak, the voice feeble, the skin is cold and clammy, and the lips, hands, and feet blue. In other words, more or less collapse is present. Yet death rarely takes place, except in the very old, or in the very young, when it is called cholera infantum (see p. 211). The disease usually lasts from twelve to twenty-four hours, or longer, but can be cut short by proper treatment.

The only disease for which cholera morbus is likely

to be mistaken is true or Asiatic cholera. True cholera is a very fatal disorder, unknown in the United States or England, except as a great rarity, since 1873. True cholera is due to a special germ, and patients developing the disease must have been exposed to the germ within six days of the appearance of the malady. The germs are present in the bowel discharges, and anybody or anything coming in contact with the discharges may communicate the disease.

In the case of cholera morbus, the patient has usually eaten indigestible or spoiled food, as noted above, whereas in cholera there is no such cause apparent; in cholera morbus the bowel discharges are apt to be colored yellow, whereas in true cholera they look like rice water, and lose all appearance and color of the ordinary bowel passages. Cholera morbus usually begins more suddenly and severely than the true cholera. Notwithstanding these distinguishing features, it is often impossible for even the most skillful physician to discriminate, by the symptoms alone, between true cholera and cholera morbus. It is only by examination of the bowel discharges with a microscope that an expert can identify the germ which causes Asiatic cholera. When any doubt exists about a case which occurs during an epidemic of true cholera, or under circumstances which might suggest the true disorder, the case should always be treated as such.

Treatment.—Opium in some form is the essential remedy. As the patient is continually vomiting and

True Cholera

purging, it is impossible to secure a satisfactory result, except by the method of injecting the drug in the form of morphine,¹ one-fourth of a grain under the skin. This most persons are unable to do, so that the medicine must be given by the mouth or injected into the bowel. Twenty drops of laudanum or a tablespoonful of paregoric should be given in a little ice water, and if soon vomited should be immediately repeated, even a third time if the second dose is rejected. If the medicine is retained in the stomach the drug may be repeated every hour in the doses mentioned until the vomiting and purging and pain are relieved; if the medicine is not retained thirty drops of laudanum in a half cupful of warm boiled starch and water may be injected into the bowel, and repeated in the same manner. Morphine may be given in quarter-grain doses by a physician's orders only, and repeated every hour till the symptoms are relieved. The applications of a mustard poultice or hot cloths to the belly, and hot-water bottles at the feet are of service.

TRUE CHOLERA; ASIATIC CHOLERA. —

True cholera originated in India, and is very prevalent in hot countries. It occurs in Europe and America during the summer months and early autumn, but has not been epidemic in the United States since 1873. The special and only cause is a particular germ, the "comma bacillus"; and, as was noted in the previous article, true cholera can only be diagnosed from cholera

¹ Caution. Morphine is a dangerous poison.

morbus in doubtful cases by the finding and recognition of this germ. One becomes predisposed to the disease by intemperance, debility, or unhygienic surroundings.

Cholera is not particularly contagious to the attendants of patients. Doctors and nurses do not often contract it if they practice cleanliness, as the germ is present in the stomach and bowel discharges, and by keeping the hands free from contact with these, and by washing, after contact with the patient and his clothing and bedding, the danger of communication becomes slight. Besides infected food, water contaminated with the germs is the most frequent source of danger, so that all drinking water should be boiled during cholera epidemics.

Vegetables which are eaten raw may become sources of contagion if they are washed in unboiled water. Milk is also sometimes an abiding place for germs, and should likewise be boiled.

All clothing coming in contact with a patient should be soaked in five per cent solution of carbolic acid in hot water, and bowel discharges should also be treated in the same manner. Flies may communicate the disease by alighting on the bowel discharges and conveying the germs to food. One attack does not always secure freedom from another.

Symptoms.—Two to five days elapse after exposure and entrance of the germs into the digestive tract before symptoms occur.

These are not so severe at first, as in cholera morbus.

True Cholera

Headache, diarrhea, colicky pains in the belly, and general depression come on for a day or two, and then the patient grows suddenly worse. The discharges resemble rice water, without color or much odor, and amount to half a pint or so at each evacuation. Vomiting is incessant, there are often severe cramps in the arms and legs, and a sensation of burning and pressure about the center of the belly. The patient becomes rapidly exhausted by the loss of so much fluid from the blood, and the thirst is most distressing. Collapse appears with ice-cold feet, hands, and face, purple or almost black lips and pinched features, stupor, and feeble voice and pulse and subnormal temperature. This stage lasts from two to twenty-four hours, and, if the patient survives it, returning warmth to the skin and lessening diarrhea and vomiting offer promise of recovery. Recovery is complete in a week or two, but relapses often occur and cramps in the arms and legs are common. The death rate varies from thirty to eighty per cent, according to the prevailing severity of the disease. Old persons, those of weak constitutions, and the intemperate fare worst. Sometimes death occurs in two hours without diarrhea, and occasionally, when the patient is apparently on the road to recovery, he becomes delirious, has a rapid weak pulse, and dies in an unconscious state. When collapse comes on quickly the outlook is unfavorable.

The only disease likely to be confounded with true cholera is cholera morbus, and this we have described

in the previous article. Cholera morbus is common in the temperate portions of the United States and Europe, whereas Asiatic cholera is of exceedingly rare occurrence in these regions, and only appears at occasional intervals in seaports where it is introduced by vessels from tropical countries. However, if any doubt exists concerning the real nature of the disease, it will not alter the handling of the case as regards treatment. The treatment of the two diseases is practically the same, but in true cholera the patient must be isolated, and the discharges from the stomach and bowels, and all articles coming in contact with him, thoroughly disinfected.

Poisoning by arsenic, corrosive sublimate, and mushrooms may exactly counterfeit cholera. The knowledge that one of these substances had been swallowed would throw light on the true state of the case.

Treatment.—The same treatment recommended for cholera morbus should be followed, that is, the use of some form of opium in the beginning of the attack. Paregoric,¹ laudanum,¹ morphine,¹ Squibb's cholera or diarrhea mixture, or one of the chlorodynes may be employed (see p. 227). The application of heat in the cold stage is most important. Thus, dry, warm blankets, rubbing the skin, hot-water bottles to the feet and legs, a hot bath containing mustard, and hot cloths sprinkled with turpentine to the belly are valuable. Lumps of ice may be held in the mouth, and half a

¹ Dangerous. Use only on physician's order.

True Cholera

teaspoonful of brandy or whisky in a tablespoonful of cracked ice may be given every twenty minutes to relieve thirst, arrest vomiting, and strengthen the patient. Better still, tablespoonful doses of iced dry champagne may be used instead at the same intervals. Hot coffee is an excellent stimulant in the cold stage.

While opium is useful in the beginning to check diarrhea and pain, it must not be given in such quantities as to produce stupor, and, in the cold stage, alcoholic stimulants and heat are to be used instead of opium. The loss of fluid from the blood is the most dangerous feature of the disease, and may be combated to some extent by injections of a quart of water (almost as hot as the hand can bear, 113° F., and containing a heaping teaspoonful of salt) into the bowel of the patient every three hours. The patient should lie flat on his back with hips raised on a pillow, and the water allowed to run slowly in from a fountain syringe. Pressure should be made with a towel over the exit of the bowel immediately after the tube is withdrawn to prevent escape of the injection. During recovery the diet must be carefully watched, and should consist of thin gruels and boiled milk for a number of days. Physicians should attend all these cases.

Prevention.—The matter vomited and discharged from the bowels must be received in vessels containing either a five per cent solution of carbolic acid, a ten per cent solution of chloride of lime, or ordinary slaked lime. The patient should be washed about the bowel

after every movement of the bowels, and also about the mouth after vomiting. The bed and body clothes of the patient, and the napkins and handkerchiefs must be thrown into the carbolic solution when soiled and boiled for half an hour before using again. Remnants of meals should be thrown into one of the antiseptic solutions mentioned above, and the dishes, plates, knives, forks, and spoons used by the patient must be boiled for half an hour in water. The bodies of patients dying of cholera should be wrapped in a sheet wet with the carbolic solution, or some other strong antiseptic till buried. It is advisable for attendant to wear some loose clothing which can be readily slipped off and left in the sick room before leaving it.

The hands of the attendants should always be washed after handling the patient, or articles touching him, and before going out of the room or eating. Attendants should never eat in the sick room, or touch the door handle with soiled hands. When cholera is prevalent the digestion should be kept in order, and the appearance of diarrhea should lead one to eat only gruels, boiled milk, crackers, etc., and take quarter-teaspoonful doses of bismuth subnitrate three times daily. Great cleanliness of person, a moderately simple diet, regular habits, and strict care of the general health, are all important in avoiding cholera. The pollution of the water supply must also be guarded against.

CONSTIPATION; COSTIVENESS.—Constipation refers to delay in the bowel evacuations or move-

Constipation

ments. The term is sometimes applied to a drier or harder movement than natural. The normal person usually has one movement in the twenty-four hours, but some people have naturally two or three passages daily, while others have habitually but one movement every two or three days, and suffer no inconvenience.

Causes.—Constipation is brought about in various ways. If, on one hand, the food is too coarse, there is too much residue left in the bowel; on the other hand, if the food is not coarse enough—and this is much more common—there is not enough undigested residue remaining to stimulate the normal intestinal movements. Lack of regularity in attending to the bowels, persistent use of cathartics, lack of exercise, and over-eating are common causes of constipation. Many diseases favor constipation, such as anæmia, nervous prostration, disorders of the brain and spinal cord, of the lungs, heart, liver, stomach, kidneys, tumors pressing upon the bowels, or narrowing of the bowels from disease or spasm. Weakness of the walls of the belly, as in fat persons and in women who have borne many children, is a source of constipation. It occurs more often in dark than fair people, and more in women than in men. Elderly people are very prone to it. The more common form of constipation, to which consideration will be given, is that brought about by sedentary habits, deficient exercise, irregularity in going to the closet, and improper diet. In most of these cases there is merely a sluggishness of the bowels, due to

deficient tone in the nerves or muscles which control the movements of the bowels. More rarely the bowel is contracted in some part by nervous irritation, so that the passages are ribbonlike or occur in small, hard balls. This latter trouble happens more often in persons suffering from some nervous disorders. Worry and anxiety are frequent causes of constipation by enfeebling the nervous mechanism which regulates the bowels. In the treatment of constipation we shall not consider that which is caused by special diseases of the various organs which we have alluded to, nor to that caused by mechanical obstruction, by tumors, etc. In such cases there are usually other symptoms which will suggest the presence of these diseases, and their greater importance will lead the patient to seek professional advice. The abuse of cathartics is often the cause of continued constipation.

Symptoms.—In many persons constipation existing for a week will produce no disturbance, whereas in others, absence of one daily movement will occasion unpleasant symptoms. Headache, dullness, a bad taste, a coated tongue, with a feeling of fullness or colicky pains in the belly, nausea, and belching of wind, are among the more common effects of constipation. Mental depression and dizziness are not uncommon. Long continued constipation is productive of piles. We often see in such cases pimples and a sallow complexion.

Treatment.—In all cases before beginning treatment we must discover the cause. Outdoor exercise

Constipation

is most valuable, but when this is impossible exercise of the abdominal walls is useful. Rubbing and kneading the belly with the right hand for five or ten minutes each morning should be practiced; a helpful exercise consists in alternately bending the body at the waist, with the arms held above the head, till the finger tips touch the floor. Rolling a three to five pound cannon ball covered with flannel over the abdomen for a few minutes each morning may bring about a cure. If the abdominal walls are weak a tight bandage may help to support them.

Habit.—Every individual should seek the closet at some regular hour each day and attempt to move the bowels, whether there is a desire to do so or not. If the body is bent, so that in sitting the back is on a line with the floor, the muscles will have more effect in causing an evacuation. Squatting over the seat while standing on it will bring the muscles into play and occasion a movement which would not otherwise occur.

Violent straining is unwise, and after attempting to move the bowels for three to five minutes unsuccessfully, it is best to give up the trial till the same time the following day. Do not attach much importance to failure in securing a movement of the bowels, as the trouble usually corrects itself within a few days, and this is much better than to rely on cathartics, unless symptoms urgently demand them.

Diet.—Abundance of water is an important aid in securing an easy movement of the bowels. Six glasses

of cold water should be taken during each twenty-four hours, preferably between meals when most convenient; one glass of hot or cold water may be taken to advantage before breakfast. The diet should be mixed and consist of meat, eggs, cereals, fruits, vegetables, and bread. Of most importance in overcoming constipation are fat, coarse bread (rye, whole wheat, and black bread), fruits (prunes, peaches, pears, apples, and grapes), and coarse green vegetables, such as cabbages, beets, turnips, cauliflower, green peas, and lettuce. Fats lubricate the bowels, and thus aid the passage of their contents. An abundance of butter, cream, and bacon are most agreeable and digestible. When fresh fruits disagree, stewed fruits may be taken, especially stewed prunes. If necessary, an ounce of senna leaves (inclosed in a muslin bag) may be cooked with four dozen prunes, and a small saucer of them taken two or three times a day for several weeks. This is particularly applicable to the victims of the drug habit, and will take the place of all cathartics. Otherwise it is well for sufferers with constipation to take, in addition to their regular meals, plenty of butter at all times, coarse bread at breakfast, lunch, and supper, and one of the vegetables at dinner unless the digestion is too poor. Fresh fruit should be eaten at breakfast, and stewed prunes (with or without the senna) or figs taken with the other meals. The object intended is not for the patient to limit himself to one or more of the articles of diet mentioned above, but to add them to

Constipation in Children

his usual regimen which should be in other respects like that of most people. Avoid tea, cocoa, and claret.

Drugs and Injections.—These should be used as a last resort. The injections are more rational where other means fail. The patient should lie flat on the back, and take the injection slowly from a fountain syringe. Half a pint of warm water or soapsuds may be taken each night, and retained with the hope of having a movement in the morning. A pint of warmed olive or cotton-seed oil may be injected each night for a week or more, and retained until the next morning. A glycerin suppository introduced into the bowel in the morning is often satisfactory. Among drugs for chronic constipation the following are most appropriate: compound licorice powder, one teaspoonful at night; aromatic fluid extract of cascara sagrada, fifteen to twenty-five drops night and morning. Mineral waters, such as Hunyadi Janos, Apenta water, etc., or the Saratoga Springs laxative waters, may be taken on rising, but after a time they do harm in persons disposed to anæmia and debility. When the constipation is due to anæmia take iron in some form—a Bland's pill, for instance, three times a day for ten days.

CONSTIPATION IN CHILDREN.—This disorder is common, especially in infants artificially fed on Pasteurized and sterilized milk. Drugs are to be particularly avoided in the treatment of constipation of babies. Water should be given infants two or three times daily, in addition to that contained in their milk.

The infant's bowels should move about twice daily, and the passages should present a bright, yellow appearance, and be of a soft, pasty consistence without lumps or curds.

Treatment.—Constipation of babies is best relieved by the introduction once a day, after dipping in water, of a small, conical piece of soap, about as thick as a lead pencil and three-quarters of an inch long, into the bowel, or by using in the same manner the small glycerin suppositories sold by druggists for babies. If these are not effective or convenient, an injection, each night, of half a cupful of warm water may be given with a rubber-bulb syringe having a soft-rubber tip, and repeated as often as the previous one escapes until a good movement results. A teaspoonful of pure olive oil given night and morning may serve as a useful and harmless laxative; in the case of nursing babies, one or two teaspoonfuls of cream may replace the oil. Older children should be treated for constipation as are adults, by regulation of their diet; a baked apple or stewed prunes are very serviceable. The juice of stewed prunes or of fresh oranges may be given to infants in teaspoonful doses, several times daily. As soon as babies are two months old, a regular time for bowel movements should be encouraged—after breakfast is a good time—and the baby kept on its nursery chair for this purpose for five minutes. Gentle massage of the abdomen, beginning on the lower right side and moving the hand in

Intestinal Worms

a circular stroke from this point up the right side across to the left and down the left side for ten minutes daily before the time for evacuation of the bowels, is often efficient. Five grains of manna may be dissolved in the baby's milk and be taken unconsciously, or fifteen drops of sirup of senna may be given daily in chronic constipation, although injections are preferable to daily dosing. When the constipation is prolonged, it is well to inject a tablespoonful of warmed sweet oil three hours before using the ordinary soapsuds injection, in order to soften the hard masses.

To teach infants to have a regular movement of the bowels, the baby when two months old should be placed on a small vessel at regular hours after its morning and afternoon meal. Its back may rest against the nurse, and its body be supported by her. It may be necessary to begin the habit by introducing a small piece of soap, as large as the tip of a lead pencil, into the bowel after moistening it with water, but after a little while this must be done away with. Within a few weeks, in most cases, the baby will have a movement as soon as it is put on the vessel.

INTESTINAL WORMS—Causes and Prevention.—Cleanliness of person is the first requisite in the avoidance of parasites. Children are more apt to be attacked by worms, as they are much more unclean in their habits than adults. They suck their dirty fingers, and handle dogs and cats from which they may acquire the eggs of the worms. They also scratch them-

selves about the exit of the bowel, and in this way, if they are suffering from worms, the eggs are again returned to the bowels, through the fingers and mouth, to develop in the body. As many as 3,000 eggs have been counted in a piece of excrement as large as a grain of wheat. Worms are often conveyed, in the form of eggs, in drinking water contaminated with human excrement, and green, uncooked vegetables may also be infected by human or other manure. The common varieties of tapeworm are acquired by human beings in eating raw or imperfectly cooked beef, pork, or sausage. Dogs contract tapeworm from eating the offal of slaughtered sheep and cattle.

The greatest care must be taken to destroy tapeworms and other parasites by fire, and to keep the parts about the bowel or "back passage" clean, in order to avoid conveying the eggs to the mouth. In the case of pinworm, after their removal by treatment, the bed-clothes should be boiled, children's toys burned, carpets cleaned, and floor and furniture washed, in order to avert a return of the disease through eggs attached to these objects.

Symptoms.—To hear the opinions of many mothers one would suppose that worms were among the most common causes of disease in children, and, with teething, accounted for the chief part of infantile illness. Both are enormously overrated as sources of disease. The only proof of the presence of worms in the body is their appearance in the excrement, or in vomited mat-

Intestinal Worms

ter, or in or about the patient. All symptoms are very indefinite and uncertain, even to the doctor, as, with the exception of pinworms, they often produce no trouble whatever. Among the more common symptoms of worms in children are: weakness, peevishness, nervousness as shown by fidgets, twitching, crying out or grinding the teeth when asleep, picking the nose, fever, convulsions, uncertain, sometimes ravenous, appetite without gaining weight, pain and uneasiness about the navel, foul breath, vomiting, constipation, and diarrhea. These same symptoms, however, are often the result of debility alone, and have no connection with worms. In the presence of pinworms there is almost always great itching about the bowel, in the early night especially, and the worms may often be seen about these parts, and in girls may wander into the front passage, causing inflammation with swelling and discharge from the sexual organs. The local irritation of the pinworms in the lower bowel may also lead to bed-wetting, masturbation, fainting, and sleeplessness in children. Tapeworms in adults also produce very indefinite symptoms, as nausea, diarrhea, discomfort in the bowels, pallor or anæmia, and, in nervous persons, sometimes melancholy.

Round Worms.—These are from four to ten inches long, pointed at the ends like earthworms, but of a yellow-white color or tinged with red. The eggs are small, elliptical, and brownish red. They naturally inhabit the upper part of the bowels, but wander about

and often are vomited from the stomach, and may thus be found in the nose or throat. They are ordinarily seen in the excrement, and a white, mucous discharge from the bowels is occasionally mistaken by the careless for them.

The treatment of round worms consists in starving the patient for twenty-four hours, although during this time some milk or broth may be taken, and then after a day and night of fasting the fluid extract of spigelia and senna should be given before breakfast; half a teaspoonful for a child of two years, one teaspoonful for a child of four to ten years of age, and two teaspoonfuls for an adult. These doses may be repeated twice or three times during the day, if the bowels do not move freely, and given two or three days during the week until the worms are expelled. It is well not to repeat the dose on successive days, but to give children a day or two of rest to recover from the effects of the previous dosing before beginning it again.

Pinworms, Threadworms, or Seatworms.—These are minute, threadlike-looking worms from one-twelfth to one-half inch in length often coating the excrement, and seen about the back passage clinging to the exit of the bowel and neighboring parts, and in girls may enter the front passage and set up inflammation there. About the back passage they cause so much itching and scratching as to occasion often a redness, swelling, and inflammation of the skin.

The ordinary treatment of pinworms is injections;

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each morning the bowel is to be well washed out with cool water and Castile soap, being sure to raise the hips of the child high on a pillow when giving the injection, in order that the water may flow as far back into the bowel as possible. An ointment containing sixty grains of boric acid in an ounce of vaseline should be frequently applied to the skin about the back passage, after the latter has been thoroughly washed with soap and water to remove the eggs of the parasites. It is well at the same time to give children a teaspoonful of Epsom salt dissolved in fruit sirup, and half a teaspoonful of fluid extract of spigelia every morning for several days to expel the worms from the higher parts of the bowel which are not reached by the injections.

Whenever the bowels move, the parts thereabout should be thoroughly washed, and the towels and all articles coming in contact with the patient should be boiled or treated as advised in the beginning of this article to prevent the contamination of other children. When the pinworms are not readily expelled by soap-suds injections, these may be followed by injection of half a pint of strong solution of common salt and water, which should be retained in the bowel as long as possible, a folded towel being pressed against the back passage to keep the injection in. These injections should be repeated each day for ten days. The application of belladonna ointment to the parts will relieve the itching.

Tapeworms.—The common tapeworms are of two varieties: beef and pork tapeworms, caused by the eating of the raw or imperfectly cooked meat of these animals. If raw beef is very finely minced, or if the juice is squeezed out of raw beef and strained, the danger of tapeworm is averted. There is great danger of children with tapeworm conveying some of the eggs from the parts about the bowel to their mouths, in sucking their fingers; in this event the immature tapeworms penetrate the body and attack other organs, thus endangering the life of the patient. The ordinary tapeworm is from twenty to fifty feet long, made up of flattened joints or segments of a white color. The head is of the size of a pinhead, and the neck is not much thicker than a thread, but the middle and lower part of the body is from a quarter to half an inch wide. The presence of the worm is recognized by the escape of pieces in the excrement every few days. After fasting, as in the treatment of roundworms, pumpkin seed, from which the outer coverings are removed by crushing, are soaked overnight in water and taken on an empty stomach in the morning; a child takes one to two ounces thoroughly mashed mixed with sirup or honey, and an adult four ounces. An hour later, one to two teaspoonfuls of castor oil should be given children; a tablespoonful of oil, five grains of calomel, a tablespoonful of Epsom salt, or some other cathartic may be taken by adults. The head of the tapeworm should always be removed with the body to prevent the

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later growth of the worm. The worm should never be dragged from the bowel if hanging from it, but an injection of soapsuds should be given to dislodge it. It is well to receive the bowel passages in a vessel of warm water, in order to ascertain the presence of the worm and prevent its breaking.

There are many other efficient and more powerful drugs for destroying worms, but they are not safely employed except under a physician's directions, and for this reason, and because mucus and other matter in the excrement are often taken for worms, it is always best to consult a doctor. Measures for preventing tapeworm include the destruction of all segments, meat inspection, and sufficient cooking of meats to kill the parasites.

CHAPTER III

Common Abdominal Pains

Remedies for Colic—Neuralgia of the Stomach—Peritonitis—Appendicitis—Gallstone—Renal Disorders—Stoppage of the Bowels.

COLIC; STOMACHACHE; BELLYACHE; INTENSE PAIN IN THE BELLY.—There are many diseases causing colic, or intense pain in the abdomen, which are considered in detail below, but in such conditions the first endeavor must be to relieve the suffering, and the following measures will be appropriate in all cases.

Treatment.—Opium in some form is usually essential. Among its various preparations, morphine sulphate¹ (grain one-sixth), laudanum or the tincture of opium¹ (ten drops), and paregoric¹ (one and one-half tablespoonfuls), one should be given hourly in a little water, until the pain abates or three doses have been given, or, if the drug is immediately vomited, the dose may be repeated at once. Morphine injected under the skin with a hypodermic syringe acts more certainly and rapidly, but this can rarely be done except by a physician.² Suppositories containing each one-quarter grain

¹ Caution. Dangerous. ² Use only on physician's orders.

Colic

of morphine and one-quarter grain of extract of belladonna are useful, because they are made to be introduced into the bowel and cannot be expelled by vomiting. One should be greased and inserted into the bowel and repeated in an hour, if necessary, but opium must not be given at the same time, in any form, by the mouth. The inhalation of ether from a towel, folded into a cone and held over the nose and mouth, is harmless, providing the patient is not rendered wholly unconscious, and also the use of chloroform, if given with the same purpose. They may relieve severe pain until the preparation of opium has begun to act. Ether should be poured on the towel, about one tablespoonful at a time, and repeated every three to five minutes, the towel being kept close over the face. In very extreme cases chloroform should be given only in single drops on a handkerchief, held an inch or so from the patient's mouth, a fresh drop being allowed to fall on the handkerchief as soon as the previous one has evaporated. Twenty drops of chloroform, if swallowed on a little sugar, will sometimes give relief from pain, but chloroform should not at the same time be inhaled. The application of cloths, wrung out of very hot water and, if possible, sprinkled with turpentine and applied frequently to the belly, will prove of much service. Also a bag containing hot water—not more than half full to avoid weight—or large, hot poultices made of bread, Indian meal, flaxseed, or any of the cereals, may be employed. Rubbing the belly in the direction

of the large intestine, if it is not tender and is much swollen with gas, may afford great relief. Hot water, containing a tablespoonful of whisky or brandy, may be swallowed if there is faintness, but ordinarily with vomiting no food or drink should be taken, except the medicine, while the pain lasts. Sometimes assisting the patient in changing his position lessens the suffering. For the special causes of severe colic and the special treatment each demands, consult the following articles.

The more common disorders giving rise to severe pain in the abdomen which we will consider are intestinal colic, neuralgia of the stomach, appendicitis, peritonitis, gallstone colic, renal colic, obstruction of the bowels, and, in women, labor pains, coming at intervals with complete intermissions; and pain in young women at the time of monthly sickness or menstruation.

INTESTINAL COLIC.—Intestinal colic is commonly caused by eating some kind of indigestible food. Indulgence in cold, fermented drinks, as sold at the soda-water fountains, and spoiled and tainted food are frequent causes. Hysterical women or those suffering from other nervous disorders are likely subjects. Attacks generally begin with nausea and vomiting and sometimes belching of wind. Constipation has often existed before the attack. The pain, which is frequently so severe as to cause groaning, crying, panting, and faintness, with cold sweats, is felt generally

Intestinal Colic

about the navel, although it may be in other parts of the belly and may shift about from time to time. Usually the suffering is somewhat relieved by pressure and if the patient lies on his stomach. In this respect intestinal colic differs from most of the other diseases, where pressure on the belly increases the pain. Occasionally in intestinal colic there is great sensitiveness to pressure, especially when the belly is distended with wind. The pain may last for hours or even days and varies in intensity. It sometimes extends to the back, thighs, loins, and even testicles. Hiccough, shallow breathing, and palpitation of the heart often accompany the attack. There is no fever, the temperature standing at $98\frac{2}{5}$ F., and the pulse is not rapid, being usually below 80. In this it differs from most of the other more serious diseases accompanied by severe abdominal pain.

Recovery is the rule; only very rarely does death occur in intestinal colic, and then because the pain is so excruciating that fainting and failure of the heart ensue.

Treatment.—The general treatment already given for colic applies to intestinal colic, but as soon as the patient can retain anything in his stomach it is wise to give either five grains of calomel or a tablespoonful of castor oil. During the attack the injection of one quart of hot soapsuds into the bowel, which should be repeated every half hour till the bowels move freely, will be advisable. Nothing but broths and thin gruels

should be given for a day or two after the attack, although there is usually no pain of any kind when the intense agony is over.

NEURALGIA OF THE STOMACH.—This is more common in pale women, who worry constantly about household matters, although occasionally it is seen in apparently healthy men. It is also caused by various diseases of the stomach when there have existed, previous to the severe attack, some symptoms of dyspepsia after eating. Neuralgia of the stomach also occurs in nervous diseases, as in locomotor ataxia, in which disease there are pains in the limbs, unsteady gait, difficulty in passing urine, etc.

When not caused by any other existing disease, the attack comes on without regard to the taking of any special food, and the patient is well between the attacks. The attack begins with intense pain, feeling of weight, and often burning sensation in the pit of the stomach, just below the breastbone. There is often nausea (but not usually vomiting), headache, faintness, and dizziness at the onset. The pain sometimes extends to the shoulder blades, back, and all over the belly. The pain is accompanied by an appearance of great anxiety and anguish, and cold sweat breaks out on the forehead. Light pressure on the belly may be painful, but greater pressure gives relief, to obtain which the patient often presses a pillow on the stomach. He usually lies with his legs drawn up to relax the abdominal muscles. The stomach is not

Peritonitis

generally distended, but rather sunken in appearance. The attack may last from fifteen minutes to several hours, and stops as suddenly as it began, and is frequently followed by a keen desire for food.

Neuralgia of the stomach may be distinguished from intestinal colic by the fact that the intense pain is felt in the pit of the stomach and that it is not relieved by the escape of wind from the bowels, as often happens in colic, and does not follow constipation, which is not rarely the case in colic. The treatment is the same as described above for colics, generally, but if not very severe, hot drinks, hot applications externally, and twenty drops of chloroform on a teaspoonful of sugar, may arrest the pain. Otherwise, one of the preparations of opium, advised previously, must be given. If symptoms of dyspepsia are present when the severe pain has passed, it may be that the patient has some serious disorder of the stomach, and this can only be determined by examination of the stomach contents by a competent physician.

PERITONITIS (*Inflammation of the Bowels*).—Peritonitis is an inflammation of the membrane which covers the inside of the cavity of the belly, and also the stomach, intestines, and other organs within it. The old and unscientific term “inflammation of the bowels” probably covered peritonitis, appendicitis, and colitis, besides other disorders.

Very rarely peritonitis starts as such, from blows on the belly or exposure to cold, but it almost in-

variably is secondary to inflammation of one of the organs situated within the belly, which extends to the covering of these organs, and then to the whole of the membrane (peritoneum) lining the belly cavity.

A large proportion of cases of peritonitis follow surgical operations upon the belly, but, excluding these, the disease in a male is more frequently due to appendicitis, and in the female to inflammation of some of the maternal organs, following infection after childbirth or miscarriage. Ulcers of the bowels (as from dysentery and typhoid fever), ulcer of the stomach and first part of the bowel, and inflammation of the gall bladder may lead to perforation of these organs and to escape of germs into the cavity of the belly, where they cause general inflammation of its whole inner surface, or peritonitis.

Symptoms.—Peritonitis begins with intense pain in the belly in most cases. The site of the pain in the beginning depends upon the location of the organ in which the trouble originates.

If in the appendix—that little wormlike projection from the cæcum—there is pain in the lower right quarter of the belly, as described elsewhere (p. 256); if in the sexual organs of woman, the pain is low down in the belly, in the middle, or to the right or left. The pain soon becomes general all over the belly and continuous, instead of in paroxysms, as in colic of the bowels. The pain may lessen as the disease progresses, but the belly becomes very tender to pressure, dis-

Peritonitis

tended, and drumlike. The pain is made worse by movements, and the patient lies on the back, with his knees drawn up toward the belly, to relax the muscles. Vomiting is constant and produces much pain. At first whatever happens to be in the stomach is expelled, later a greenish or yellowish fluid, and finally a brownish-black material is brought up. The bowels are constipated, although they may be loose at first. The pulse is rapid (110 to 150), and the temperature may be increased, ranging from 100° to 103° F. The face is expressive of much suffering and anxiety, the eyes are sunken, the features pinched, the nose sharper in appearance. The breathing is weak and the skin cold. General peritonitis is one of the most fatal diseases, death occurring in from two to six days.

Peritonitis cannot easily be mistaken for intestinal, renal, or gallstone colic, as the pain is steady and continuous for days and is general over the belly. Also, in peritonitis, there is gradually increasing tenderness to pressure and distention of the abdomen, which are not seen in colic. Continuous fever is present in peritonitis, and this serves to distinguish it from colic with distention, in which there is pain but no fever; and if, during colic, oil of turpentine is given by the mouth on sugar in five-drop doses, hourly, and injections of warm soapsuds containing a tablespoonful of turpentine are introduced into the bowels at two-hour intervals, the gas will be expelled and the patient will

soon recover, which could not possibly happen so rapidly in peritonitis. Pain and tenderness in the lower right side of the belly, and other symptoms described under appendicitis, will serve to distinguish this disease from peritonitis; but, as has been said, appendicitis often terminates in peritonitis. Obstruction of the bowels, more difficult to diagnose from peritonitis than the other disorders, is accompanied by severe pain in the belly, and often ends in peritonitis. In either case a surgeon should be summoned at the earliest possible moment, since surgery offers most hope in both conditions.

Treatment.—The treatment comprises absolute rest and, when medical advice is not obtainable, the use of opium. The same treatment should be followed as regards medicines and nourishment that is recommended under appendicitis. Opium may be used more freely and in sufficient quantity to keep the patient fairly comfortable. No cathartics should be given. To relieve the distention of the belly, a quart of warm water containing a tablespoonful of oil of turpentine may be injected at frequent intervals into the bowel. Cloths dipped in turpentine and wrung out of hot water, or cloths dipped in ice water, should be applied to the abdomen with frequent changes throughout the disorder. Sometimes one, sometimes the other, gives relief.

As the disease may last a long time, if the patient recovers, it is permissible to begin to feed him by

Appendicitis

the mouth after the first few days with about a half cupful of cold milk every two hours, varied by juice squeezed from hot, rare beef, or white of egg and cold water. Cracked ice held in the mouth will tend to relieve vomiting.

APPENDICITIS.—The frequency with which this disease attacks man gives it much importance. It is more common between the ages of ten and thirty. The only causes which appear to excite the disease are: first, that the appendix is a useless organ in man, and is gradually degenerating and disappearing; second, that such an organ, being poorly supplied with blood, can but poorly resist the inroads of germs which enter the appendix from the bowels. The germs which cause appendicitis very often are also the cause of the diarrheal diseases of childhood, and start the trouble in the appendix at that time. There is no particular way in which the adult can avoid appendicitis. The old theories of grape seeds, etc., being the cause of the disease are not founded on fact.

Symptoms.—Pain is the first symptom usually. This often begins about the navel, shifting after a while to the right lower part of the belly. The pain begins suddenly in most instances, and is usually continuous and often agonizing. Nausea and vomiting accompany the pain and may last, at more or less frequent intervals, throughout the attack. The patient lies with the legs drawn up toward the belly so as to relax the muscles of the belly. The most important

point in distinguishing this disease from others with pain in the belly is the fact that there is tenderness over the inflamed appendix. The point of tenderness is in the lower part of the belly on the right side, usually midway between the navel and the bony prominence of the hip. Even when the pain is situated in the middle of the belly, it will be found that there is more tenderness on pressure of the hand in the right lower part of the belly than at any other point. The pulse and temperature are usually increased. The pulse may be 80 to 120 or more, and the temperature from 100° to 102° F., or even higher. Appendicitis, then, differs from ordinary intestinal colic due to indigestion in the following points: the pain is continuous rather than intermittent; there is local tenderness on pressure, whereas in colic the pain is not increased, but often diminished, by pressure and lying on the belly; the pulse and temperature are usually increased in appendicitis. Appendicitis may last a few hours, days, or weeks. The patient may (1) entirely recover and never have another attack; (2) may suffer more or less pain constantly, not sufficient to require him to stay in bed, but enough to make him miserable, and he is likely to have another acute attack at any time; (3) may apparently recover completely and yet have another attack at any time—this is the more common result; (4) or the attacks begin as described above, and the patient may die in twenty-four hours or may continue in pain, and after some days a lump

Appendicitis

may form in the lower right side of the belly, and this may soften down into an abscess. This may subside in a few weeks or may break internally and cause death, or its contents may escape from the bowels. Many other complications, too difficult of understanding for the layman, may occur.

The appearance, in the course of the disease, of chills, rapid, feeble pulse, general swelling and drum-like condition of the belly, with anxious, pinched countenance, cold sweats, and coldness and blueness of the hands and feet, are bad signs.

Treatment.—The most successful treatment consists in the surgical removal of the appendix within the first twenty-four hours from the beginning of the attack. In this way, if a competent surgeon is obtainable and the facilities are at hand, about ninety-eight patients in a hundred can not only be saved, but their liability to future attacks absolutely avoided. On the other hand, if an experienced operator is not to be had, nor the proper hospital or other facilities, and surgical treatment is unavailable, statistics show that, with good medical care and nursing, the death rate is but ten in every hundred thus treated. The best results of all are obtained by the surgical removal of the appendix after an acute attack is over and the patient apparently well, the deaths in such operations being practically nothing, or perhaps one in the course of several hundred operations, performed between the attacks, from accidental causes. The vital argument

for early operation in acute attacks of appendicitis consists in the fact that even the most skilled physician living cannot tell by examining any special case of appendicitis whether the result will be favorable or not, because he cannot tell what is the exact condition of the appendix by any means at his command. If, however, the patient begins to get steadily better after the first two or three hours of sickness, one may feel confident of his recovery from that special attack.

The best medical treatment consists in absolute starvation. This secures rest of the bowels, and is the best mode of allaying the inflammatory condition. No more opium should be used than is essential to relieve the pain. Keep the patient perfectly quiet, do not let him rise to pass urine or have a movement of the bowels; use a urinal or bedpan. No food should be given of any kind until four days after all the pain has subsided, if the attack has been severe and lasted over twenty-four hours. No food should be allowed in any attack while there is any pain. After pain subsides, only beef extracts, broths, and thin, strained gruels should be given for several days, the patient remaining in bed. In severe attacks the patient may rinse his mouth with ice water, or hold ice in his mouth; in less severe attacks, he may drink, continually, small sips of hot water. To relieve the thirst, and make up to some extent the loss of food, the patient should receive, during the attack, one-half pint of warm water containing one-quarter teaspoon-

Appendicitis

ful of salt as an injection into the bowels, every four hours. The injection will best be made with a fountain syringe, raised but a foot or two above the patient, and he must not be allowed to move much. After the injection has been given, it will be more readily retained if a towel is held firmly over the exit of the bowel for a few minutes. To take the place of two of these injections, twice in twenty-four hours, an injection containing either one raw, beaten egg with a pinch of salt and a teaspoonful of sugar in a cup of warm milk, or two tablespoonfuls of juice squeezed from slightly cooked, fresh beef in a cup of warm water, may be given for nourishment.

No cathartic of any description is permissible while the pain lasts, and when the bowels are first moved it is well to move them with injections of warm soap-suds. A cup of sweet oil, injected a few hours before the water, may soften the contents and aid their expulsion. A rubber bag containing cracked ice applied over the seat of pain in the right lower quarter of the belly is generally more conducive to comfort and recovery than hot poultices and hot cloths, especially when there is much fever. However, when ice is not obtainable, the poultices should be employed throughout the attack, and in some cases may afford more relief than the ice. Inability to pass urine is not uncommon, especially if much opium has been taken. The application of hot cloths over the lowest part of the belly and the injection into the bowel of a pint of

water, as hot as can be comfortably borne, will usually assist the passage of urine.

GALLSTONE COLIC.—This disorder is more frequent in women over forty years of age. The gall bladder is situated immediately under and below the lowest rib, about one and a half inches above and one and a half inches to the right of the navel. The pain usually accompanies the escape of gallstones from the gall bladder into the passage which conveys the bile from the gall bladder to the bowels. The pain begins suddenly, and is often agonizing and of an aching, tearing character, and sometimes is not continuous, but occurs in violent attacks with comparative ease between them.

It is felt in the region of the stomach, but more in the right lower chest and right shoulder blade. Pressure below the ribs on the right side may at first give relief, but tenderness in this region soon appears and is the most distinguishing feature of this form of colic. Pressure should be made over the seat of the gall bladder—an inch and a half above and to the right of the navel—and compared with similar pressure upon a corresponding point of the other side of the belly. The patient commonly suffers so intensely that he rolls about in agony, and is pale, covered with cold sweat, and vomits frequently, while the pulse is feeble. There is often chilliness at the onset of the attack, followed by fever with a temperature of 102° to 103° F. The pain may last a few hours or, with

Gallstone Colic

intermissions, for days or weeks. It is occasionally continuous and dragging instead of occurring in sharp attacks. Jaundice coming on either with or after an attack of pain, such as described, is another distinctive point, and taken with violent pain and tenderness over the gall bladder, will enable one to be reasonably sure of the existence of gallstones. Jaundice is shown by yellowness of the eyes, tongue, skin, and urine, with whiteness of the bowel discharges, but jaundice is not always present.

Treatment.—It is impossible to dissolve or remove stones in the gall bladder by any medicines. It is also true that they exist in a large number of persons without causing any trouble; and their existence would be unknown if it were not that they are so frequently found at examinations after death. During the attack of pain the treatment recommended above for colic in general should be followed. After an attack has passed, the patient—if in fairly good health—should take plenty of outdoor exercise, as horseback riding (“the outside of a horse being often the best thing for the inside of a man”), gardening, sawing wood, hunting, golf, or whatever is most congenial, unless the attacks are frequent and there is much tenderness in the region of the gall bladder. It is well to move the bowels freely each morning by sipping slowly a glass of hot water containing a teaspoonful or more of sodium sulphate and sodium phosphate, about half an hour before breakfast; that is,

a teaspoonful of each of these salts or enough of them to give a good daily movement of the bowels. Itching, which is frequent if there is jaundice, may be relieved by baths containing baking soda, and by dusting the skin with cornstarch. If the attacks are frequent, or severe, surgical treatment is demanded, as complications may arise which will not only ultimately cause death, but will at a late stage make surgery a precarious resort. The gall bladder, like the appendix, is not essential, and its removal, if necessary, is not attended with any future damage to the patient. The necessity for immediate operation at the time of attack is not imperative, as in the case of appendicitis, but operation on the gall bladder or the passages connected with it, if done before much jaundice or inflammation have occurred, is attended with little more danger than an operation for appendicitis when undertaken by surgeons experienced in such work. It is now recognized by physicians that the surgical treatment of gallstone disease is as successful as that for appendicitis. The sooner, therefore, that a case of gallstones can come under the care of a skillful physician, the better, as very careful study is required for the understanding of the exact diseased condition existing in each case in order to determine the proper treatment. Many cases will not require operation; in others only an operation will avert death.

RENAL COLIC.—Renal colic is usually caused either by the presence of a stone in the kidney or in the

Renal Colic

narrow tube (ureter) which connects this organ with the bladder; or occurs during the passage of the stone from the kidney into the urinary bladder. It is more common in men, and in late or early life. The attack begins suddenly with agonizing pain in one side, more particularly just below the ribs in the narrow part of the back, but also in front in the corresponding situation, that is, in the belly just below the ribs on the same side. The pain is also sometimes felt all over the belly and even in the chest; but what serves to distinguish it from the other colics is that the pain shoots down into the groin, inner part of the thigh, and testicle in front. There is, in addition, tenderness on pressing firmly on the small of the back, just below the ribs on the painful side. The pain is accompanied usually by vomiting, cold sweats, and feeble pulse. The passage of urine is frequent, painful, and often bloody—a very important point—although it may look perfectly natural. Occasionally the urine is scanty or entirely lacking. There may be a chill at the onset of the attack and the temperature may be raised to 102° to 103° F. The pain may last an hour, or even a day or more, with intermissions. If the urine be carefully examined, the stone may be found within a week or so after the attack of colic. Soreness and tenderness remain for a time in the affected side, and if the stone lodges in the bladder, there may be frequent urination and some pain in the lower part of the belly. Occasionally the stone remains in the

bladder and gives rise to inflammation of this organ, with frequent and painful urination and the appearance of pus or thick, white sediment in the urine. More often after the stone has escaped from the ureter into the bladder, it is expelled in the urine without the knowledge of the patient. Very rarely does it become lodged in the passage (urethra) leading from the bladder outside of the body. The location of the pain is one side serves to separate renal colic from intestinal colic; while the extension of the pain into the thigh and testicle, with drawing up and tenderness of the testicle, distinguishes it from all the other colics. In gallstone colic the pain is in the right side, and the pain extends up rather than down, as in renal colic. The presence of blood in the urine, with intense pain in the side shooting down into the thigh, makes the existence of stone in the kidney or ureter practically certain.

Treatment.—Relief from pain may be secured by following the treatment recommended for colic generally (p. 247). There may never be a recurrence of an attack of renal colic, or attacks may be frequent. This follows because after one stone escapes, more may remain in the kidney or ureter. A stone in the kidney may cause no trouble at all during the course of many years, or during the patient's life, or may give rise to inflammation with more or less frequent attacks of pain and escape of blood and pus in the urine. If the attacks of pain are severe and frequent, or if the

Renal Colic

urine is not clear, but contains pus or blood for any length of time, the only curative treatment of any value is the surgical removal of the stone from the kidney or ureter. The operation, while grave, is not attended with much danger if done by surgeons experienced in this work. In cases where the attacks are mild and infrequent, the patient should drink about two quarts daily of distilled water or filtered rain water or other pure water, as Poland, Bedford, or Buffalo, and take three grains of lithium citrate in tablet form dissolved in a glass of water three times daily. No medicine or mineral water will have the slightest effect in dissolving a stone already formed in the kidney or urinary passages, but large quantities of fluid may assist in washing stones out of the urinary tract and relieve the irritation caused by them; while with medicine, the effect of much water drinking is to prevent further stone formation. Out-of-door life and exercise are also necessary in effecting a cure, as also the absolute avoidance of alcohol in all its forms.

Meat should be eaten in moderation; not oftener than once daily. The existence of stone in the kidney and ureters is often most difficult to determine when there is absence of special pain to locate them. Fortunately, we have some exact methods to prove their presence, as the X-ray in thin persons, and methods of exploring the urinary passages even so far as the kidney without any cutting operation. For this work expert genitourinary surgeons are, of course, required.

Thus, as in the case of appendicitis and gallstone colic, the treatment of renal colic must often be surgical. But while appendicitis demands instant surgical attention, it is only in the more severe cases of gallstone and renal colic that this is necessary.

COLIC IN BABIES.—This is commonly due to the fermentation of undigested food in the bowels, with the formation of gas, as in intestinal colic in adults. It is due to the food being unsuited to the digestive capacity of the infant, and one usually should dilute the feedings with more water, feed less at a time, or not so often. The dilution of the feedings is the best treatment in most cases. Colic may occasionally arise from chilling of the surface, and it is well for babies subject to it to wear a warm flannel band and socks.

Symptoms.—The baby cries persistently and is continually doubling and straightening his body, and bending and straightening his arms and legs. The belly is often swollen and hard. Relief is sometimes rapid after an escape of wind from the bowels or mouth.

Treatment.—Give a few drops of brandy in a little hot water, or dissolve a soda-mint tablet in hot water and give this. If pain still continues, give an injection of warm soapsuds—a cupful at a time—and if it comes away without escape of gas or bowel contents, repeat until the result is satisfactory. Gentle rubbing of the surface of the belly will often afford relief. Do not feed the baby while it has colic, and at the next

Sudden Obstruction of the Bowels

feeding dilute the food with an equal quantity of water.

SUDDEN OBSTRUCTION OF THE BOWELS.—This condition in adults is more commonly caused by compression of the bowel at some point, as in the opening through which a “rupture” occurs; or by compression from a band of tissue resulting from former attacks of inflammation. It may result from operations or from unnatural conditions originating in the development of the patient before birth. Another frequent cause of obstruction of the bowels in children is a slipping of one portion of the bowels into a neighboring part, as one joint of a telescope slips into another. Twisting of the bowel on itself is still another source of obstruction, and even an almost knotted condition may at times occur. The existence of an accumulation of hardened excrement in the bowels may give rise to complete obstruction. Very rarely the presence of foreign bodies, which may have been accidentally swallowed, or of gallstones, may obstruct the bowels. Obstruction of the bowels is an exceedingly rare occurrence.

Symptoms.—The pain is usually in the neighborhood of the navel; beginning suddenly, it is at first intermittent, but later becomes continuous. It varies in intensity from moderate to excruciating pain. Vomiting is also a prominent symptom. First, the contents of the stomach are expelled; then greenish, bilious matter; and, finally, after a day or two, a brownish-

black substance having an unmistakable odor of excrement. Constipation is the third symptom of importance; often it is complete, but, particularly in the obstruction common to children, there escapes from the bowels slimy and bloody material with much straining. The temperature may rise to 102° F., or higher. Free passage of either gas or excrement will enable one to rule out the possibility of any form of complete obstruction. The belly is often much distended with gas, and although not tender to the touch at first, it rapidly becomes so. A lump may be felt in the belly, especially in children. The effect of obstruction of the bowels on the general condition is marked; there are great prostration, feeble pulse, cold hands and feet, and anxious, sunken features and cold sweats. If the obstruction is not relieved, the patient will not live more than three to six days.

Absolute constipation with constant vomiting and tenderness and distention of the belly often occur in other conditions than obstruction of the bowels, as in appendicitis and peritonitis. The appearance of vomiting of matter having the odor of excrement is characteristic of obstruction of the bowels and nothing else.

Treatment.—In addition to the use of opium and external heat, as advised under treatment of colic (p. 247), injections of warm water into the bowel, with the patient on his back, and hips raised on a pillow, should be given. The use of cathartics is very dangerous. The water should be allowed to flow from a

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fountain syringe raised three feet above the patient—as much as six quarts at a time for adults, one and one-half pints for infants—and injections should be given three times a day, the patient being encouraged to retain the water as long as possible. If the obstruction is simply due to an accumulation of excrement, it will be overcome, and sometimes the other forms of obstruction as well. Surgical attendance should be summoned at the earliest possible moment in all cases, as only early operation will give relief in cases which do not respond to injections, and in severe cases it is unwise to waste time in medical treatment or injections or inflation by gas. In all cases not relieved by injections, surgical interference is imperatively demanded.



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